50th Anniversary of Iran's Petrochemical Industry
Iran Eyes $70b Finance in Petrochem Industry in Vision Plan (2025)

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Economy, Society, Environment

Economy, society and the environment. By most advanced definitions, these are the three interdependent pillars of sustainability. Nations do business in and out of their countries to enhance their economy. Now how far will they go to serve their ethical values? Are they correctly exploiting the resources? How concerned are they about the interest of future generations? What importance do they attach to transfer of technology? Is the environment preserved through industrial growth? What is their interpretation of "sustainable development"?

A definition of sustainable development put forward by the United Nations World Commission on Environment and Development in 1987 states: “Sustainable development meets the needs of the present without compromising the needs of future generations.”

In the industrial world, actual progress toward implementation of this concept is no easy task. This is due to the simple fact that translating sustainability to the business world has proven to be quite challenging. The challenge is more critical to industries that deal with national assets such as oil and gas reserves. The petrochemical industry is one example.

Sound business decisions and systematic technical progress are currently required by all petrochemical companies; one of them is no longer enough. The world is becoming increasingly aware of an economic growth that does not deplete irreplaceable resources, does not destroy ecological systems and helps reduce some of the world’s social inequalities. There is a pressing need to focus on emission reduction, resource conservation, and financial strength.

Here is an industry that mostly runs on feedstock provided through the exploitation of natural gas resources. At the same time, it essentially requires progress in technology associated with environmental protection measures. It is expected to diversify exports, bring further revenues and create more jobs. The business, industrial, environmental, social and cultural aspects are all involved.

In some countries in North America and Western Europe, the petrochemical industry is mature enough to be export-dependent. But from now on, they will not only be exporting petrochemicals to customers, but also petrochemical expertise to partners. Through international developments, the petrochemical industry has not been an island. Expertise and raw materials will no longer be two individual sides of the give-and-take story. Governments and companies are now presenting their competitive advantages in form of attractive packages. Transfer of technology, long-term commitment, financial strength, project procurement, on-the-job training and expert advice are on one side; and abundant feedstock, cost-effective energy, inexpensive workforce, ideal location, tax holiday and easy market access are on the other side.

Such examples of partnership and cooperation can best take place between regional and neighboring countries. It will serve nobody’s purpose to develop the same technology to manufacture the same products for export to the same markets. This case holds true particularly in the Middle East where the Iranian petrochemical industry continues strategic planning for an ambitious growth.

To the world’s amazement, war and economic sanctions strengthened Iran’s petrochemical industry. With customers in China, India, Indonesia, Japan, Korea, Malaysia, Singapore, Taiwan, the Philippines, Vietnam, Germany, Italy, the Netherlands, Turkey and the U.A.E., the Iranian petrochemical industry intends to increase its share in the country’s GDP while diversifying non-oil exports. As a confident sector in a stable country, the Iranian petrochemical industry offers an attractive investment package for partnership.

As a confident sector in a stable country, the Iranian petrochemical industry offers an attractive investment package for partnership.
World Trade and Output Growth: Export expansion is one of the key factors for sustained economic growth. Recent empirical studies reveal that a 1% increase in growth of exports is associated with a 0.20% increase in economic growth. However, the patterns of world trade and output growth have not been uniform across the different regions. Trade has been growing much faster in the case of OECD economies and the countries in South East Asia as compared to Latin America and Africa, with oil exporting countries showing the lowest rate of trade expansion, both absolutely and in relation to their output growth.

This is partly due to the fact that world trade in primary products has been growing much more slowly than trade in manufactured goods. For example, exports of low and medium technology manufactured goods show an average growth rate of 6.8% per annum as compared to 3.2% growth for exports of primary products. Oil exporters, in general, and Iran, in particular, have suffered from too much reliance on exports of crude oil as compared to exports of processed or manufactured products.

Over 1979-2000, the trade-output growth ratio has been below 1 for the oil exporters and negative in the case of Iran. However, since 1989 (the beginning of economic reconstruction and after the Iran-Iraq War), trade has started to grow by 1.76% as compared to an average output growth of 5.7%, yielding a positive trade-output growth ratio (0.30), still well below unity, and substantially below the average ratio of 2.35 achieved in the case of the OECD economies. To enjoy the fruit of technological advance it is critical that Iran becomes an active participant in the world export markets in medium and high technology manufactured goods.

Reasons Behind Iran’s Sluggish Trade: One of the important factors contributing to Iran’s low trade-output growth ratio is the dominant role that crude oil exports have continued to play in the Iranian economy. Although share of oil GDP in total GDP has been declining and currently stands at 20%, oil and gas exports still form as much as 80% of Iran’s total merchandise exports and 60% of government’s revenues.

Dependence of the Iranian economy on oil exports is amongst the highest in the world, particularly if due allowance is made for the overall size of the Iranian economy and its population. Existence of substantial oil revenues tends to reduce the urgency of politically unpopular policies, such as removal of subsidies, establishment of an effective taxation system, and the reform of investment and labor laws in favor of private capital investment. The eight years of war with Iraq, by substantially diverting potential resources from export markets to domestic requirements is clearly another important factor behind Iran’s sluggish trade.

Twenty four years of US trade sanctions, intensified since the Persian Gulf War (1991), is another important factor in holding down Iran’s foreign trade. The first formal US sanction against Iran were ordered by the Carter administration in April 1980 and has been in effect over the past 24 years in one form or another. During1989-91, the early parts of the Bush (senior) administration, US trade restrictions on Iran were slightly relaxed. In 1993, the so-called “dual containment” policy was initiated by the Clinton administration focusing on the twin threats of Iraq and Iran. This was followed by Iran-Libya investment sanctions (1996-1999) aimed primarily at halting the development of Iran’s oil and gas industry. Non-US firms investing more than $20 (previously $40) million in any one project to export produced gas via LNG and pipelines, to utilize it through gas to liquid (GTL) and developing the petrochemical sector.

Qatar has embarked on a very ambitious plan for monetizing its large gas resources through setting up projects to export produced gas via LNG and pipelines, to utilize it through gas to liquid (GTL) and developing the petrochemical sector.
I think the enlargement of the EU will lead to Iran enjoying more benefits, because all the new member countries will enjoy the trade system with the European countries and this will be a better opportunity to export to these new countries.

"I believe among the Middle East countries Iran has the leadership role. We are succeeding in more and more projects unlike the past. Contacts have become easier and more smooth since last year."

Jürgen Rabenseifner, Sales Manager, LEWA Metering Pumps & Systems

"From the international side they could talk about some new technical developments, and from the Iranian side I would be interested to hear what kind of research is done by Iranian researchers."

Klaus Dohle, Vice President of Inorganic Specialty Chemicals, Sasol Germany GmbH

"With more publicity at the international level there will be even a larger attendance next year. There is a huge interest in investing in Iran and learning about its development."

Matt Paasonen, Licensing Manager, Stamicarbon B.V.

Promotion of Non-oil Exports: Important steps have also been made to promote non-oil exports. The share of non-oil exports has risen from 10% to 20%. Amongst the non-oil exports, chemicals have shown the largest rate of increase. They are now as important as exports of carpets.

Approval of the Foreign Investment Protection and Promotion Act (FIPPA) signed by the Expediency Council in May 2002, and is expected to be around 4% for 2004-05.

There are significant investment opportunities in medium technology manufacturing industries as well as in oil and gas related manufacturing such as petrochemicals.

With new opportunities there are naturally new challenges. High Inflation and rising unemployment present important risks. A stable economic and political environment is the key to the attraction and success of foreign investment.

Constitution: Over the past decade Iranian economy has made significant progress, reversing a downward trend after a decade of revolutionary upheavals and a costly war. But its sustainability critically depends on the continuation of economic reform and liberalization at home, a sound macroeconomic management, and a fuller economic integration in the global economy. It is difficult to imagine how this could be achieved without further political democratization of the Iranian society.

Iran’s Response: Iran’s response to these issues has been the following. Trade Diversification: Iran has responded to trade sanctions by geographical diversification of its international trade (imports and exports). The share of G7 countries in Iran’s imports has fallen substantially from 48% to 34%. Similar trends can also be seen in the geographical patterns of non-oil exports. Iran has also been successful in establishing closer trade and political ties with (old) Europe and its neighboring countries (particularly UAE), China, South Korea and Malaysia.

Other Economic Reforms: Other important developments aimed at Iran’s greater participation in the global economy include liberalization of imports, some reduction of implicit and explicit food and energy subsidies (oil consumption has stopped rising for the first time, although implicit subsidies on oil and gas are still at record levels); unification of the exchange rate system, attempts at privatization and modernization of the industrial sector, and the formation of the Oil Stabilization Fund in 2000 ($5.90 and $7.44 billions deposited in the Fund during 2000-01 to 2001-02). These are steps in the right direction—but a great deal more needs to be done.

An Overall Assessment: Having conducted this analysis, it can all be rounded up as follows:

Prospects: The overall economic prospect is favorable. GDP growth is estimated to be around 6% for the year ending March 2004, and is expected to be around 4% for 2004-05.

There are significant investment opportunities in medium technology manufacturing industries as well as in oil and gas related manufacturing such as petrochemicals.

With new opportunities there are naturally new challenges. High Inflation and rising unemployment present important risks. A stable economic and political environment is the key to the attraction and success of foreign investment.

Conclusion: Over the past decade Iranian economy has made significant progress, reversing a downward trend after a decade of revolutionary upheavals and a costly war. But its sustainability critically depends on the continuation of economic reform and liberalization at home, a sound macroeconomic management, and a fuller economic integration in the global economy. It is difficult to imagine how this could be achieved without further political democratization of the Iranian society.
Under Mentioned Projects Are a Sign of Pidec Outstanding Efforts in Oil, Gas & Petrochemical Industries

NAME & LOCATION OF PLANT

1. PP POLYMER ARAN METHANOL PLANT ASSALUYEH
2. NAR AS PHENOL MEG PLANT BANDAR DAYER
3. FATEH IRAQ METHANOL PLANT BANDAR DAYER
4. MARDAN FERROGAL SIPL PLANT BANDAR ASSALUYEH
5. BUSSIERE METHANOL PLANT BANDAR ASSALUYEH
6. CERAMICA KOBAY PLANT CERMAYE
7. KERMAZ FUEL PLANT KERMAZ ASSALUYEH
8. MANDAN DOE PLANT BANDAR ASSALUYEH
9. FENICAL AMMONIA & UREA PLANTS BANDAR ASSALUYEH
10. ONAN MEG PLANT BANDAR DAYER
11. KERMAZ & DENA METHANOL PLANTS BANDAR ASSALUYEH
12. NOVA CHEMICALS PLANT BANDAR ASSALUYEH
13. BASIC ENGINEERING PARIR REFINERY
14. ISAFAR REFINERY ISAFAR
15. KARIZ ALOUQI UREA PLANTS SHIRAZ
16. KARIZ AMMONIA PLANT SHIRAZ
17. BUTENES & ENGINEERING
18. PARIR REFINERY PARIR PROJECTS
19. KARIZ ME THALI BANDAR DARAYA
20. NGL PLANT SHARG ISLAND (MORBAD) BANDAR ASSALUYEH
21. SECONDS ZAGROSS METHANOL PLANT BANDAR ASSALUYEH
22. 2nd GHADIR UREA & AMMONIA PLANT BANDAR ASSALUYEH
23. EXPORT PIPE LINES KHARG GAS GATHERING & NGL RECOVERY PROJECT
24. OFFSHORE PLATFORMS KHARG GAS GATHERING & NGL RECOVERY PROJECT
25. RAZI PETROCHEMICAL COMPLEX
26. REVAMP OF CRUDE DISTILLATION RELEVANT AUXILIARY PLANTS ARAK HUFAI
27. 1st GHADIR UREA & AMMONIA PLANT BANDAR ASSALUYEH
28. AM DOE PLANT BANDAR ASSALUYEH
29. ZZGROSS METHANOL PLANT BANDAR ASSALUYEH
30. PETRO BENDREX/|STYRENE BANDAR ASSALUYEH
31. TARANTO POLYESTER PROJECT
32. MARUN EDEG PLANT BANDAR IMAM TIR HELEFIN COMPLEX
33. BANDAR IMAM SPECIAL ZONE
34. THIRD AROMATICS BANDAR IMAM SPECIAL ZONE
35. MTBE AIR COOLER BPC
36. MTBE SUPERVISION
37. SOUTH PARIS ASSALUYEH
38. METHANOL AIR COOLER KARAJ ISLAND
39. HPO BANDAR IMAM SPECIAL ZONE
40. BANDAR IMAM PETROCHEMICAL COMPLEX
41. ENGINEERING SERVICES BANDAR IMAM PETROCHEMICAL COMPLEX
42. OFFSHORE YARD BANDAR ABBAS
43. CRYSTAL GLASS PLANT BANDAR IMAM IRAN
44. METHANOL PLANT KHARG ISLAND IRAN
45. SILICON CO/PROJECT
46. BUTENES ME THALL BANDAR DARAYA
47. TIRE MACHINES BANDAR IMAM IRAN
48. TANNEF MOLASSES LOADING BANDAR IMAM IRAN
49. ESFAHAN AROMATICS PROJECT ESFAHAN IRAN
50. TANKS OF ARAM PETROCHEMICAL COMPANY ARAK IRAN
51. WUR FATAMOUS PROJECT SHIRAZ IRAN
52. BHAR MEG PLANT BANDAR IMAM IRAN
53. FEASIBILITY STUDIES PROJECT SHIRAZ IRAN
54. MILFRACTIONATION PLANT BANDAR IMAM IRAN
55. CHARDALU PLANT MIRAN IRAN
56. KHORASAN PETROCHEMICAL COMPLEX BUKHORO IRAN
57. CRYSTAL ME THALL IRAN
58. CARRION BLACK NGL BANDAR IMAM IRAN
59. TANNEF MOLASSES LOADING BANDAR IMAM IRAN
60. CRYSTAL ME THALL IRAN
61. ETHANOL PLANT SHIRAZ IRAN
62. BANDAR IMAM TIR HELEFIN COMPLEX
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151. ETHANOL PLANT SHIRAZ IRAN
Development of information technology has done away with geographical, political and cultural borders and has created different conditions for governments to enforce their national sovereignty and protect their land and people against foreign invasion.

In view of the fact that new conditions are not optional, but obligatory and due to the fact that scientific and technological developments during recent years have brought all countries to a new situation, closing one’s eyes to existing realities and opposing change by mentioning its shortcomings and intimidations will not help developing countries to slow or change the current trend. New conditions have posed developing countries with opportunities that were not thought of in the past. The Islamic Republic of Iran should take more steps to know new global conditions and move to exploit those conditions in a better way and avail of its advantages while reducing resultant threats.

Although developed countries have benefited from new conditions more than less developed states and the distance between rich and poor countries has increased, the said conditions have paved the way for, at least, some developing countries to boost their international standing through correct planning and even rank among countries that influence global economic and political issues. Globalization for Iran is more of an opportunity than a threat, provided that suitable mechanisms for taking advantage of new opportunities are rapidly formulated. Iran’s absence in the process of drawing up related regulations has deprived the country from many opportunities. Joining the WTO in the early years was followed by offering many advantages to developing countries of which our country was deprived.

Globalization and Investment:
A major goal pursued by Western countries is consensus on an international investment regime to enforce a uniform investment procedure at international level as an investment norm or even charter. A principle currently followed is the principle of national behavior according to which the government accepting an investment should apply the same behavior according to which the government accepting an investment should apply the same procedure at international level as an investment norm or even charter. A principle currently followed is the principle of national behavior according to which the government accepting an investment should apply the same behavior according to which the government accepting an investment should apply the same.

Globalization and Global Trade:
Advancement of global information networks has brought more transparency to behaviors of different nations and the world’s public opinion has been offered an opportunity for unmediated and more widespread interaction. As a result, the way has been cleared for achieving a consensus on controversial concepts as well as values. One of those concepts is the idea of free trade and trade liberalization which has almost become a global obligatory norm as a result of the establishment of the World Trade Organization (WTO). It is for the first time that trade differences are settled through an international judicial mechanism or a global judge. A large number of verdicts issued by the dispute settlement organ of the WTO pertained to realization of the rights of developing countries and adapting them to international standards. These international norms. Joining the world as well as structural changes. Iran’s absence in the process of drawing up related regulations has deprived the country from many opportunities. Joining the WTO in the early years was followed by offering many advantages to developing countries of which our country was deprived.

Globalization and Communication:
Communication is among important support services needed by many economi-
ic sectors for rapid growth and reconstruction. During recent years, due to excessive growth of information technology and its enormous influence on other economic sectors, communication has become more important. Our country can enjoy comparative advantages in terms of communication information, technology and related services provided that communication infrastructures in contact with other countries and domestic localities are qualitatively excellent. Although we have progressed in this field during recent years, we have a long way to go before attaining our desired goals.

Globalization and Internet:
Valuable facilities provided to users by this modern phenomenon have greatly reduced possible harms from it. It is not good for us to limit access to this useful tool on the pretext of possible misuses just in the same way that we do not restrict learning foreign languages because they can be used improperly. The main asset for engaging in communication and telecommunication activities is nothing but the “human mind.” Our youth enjoy enormous amounts of that asset. Therefore, we must provide needed infrastructures for activation of this human asset so that they can use it at global markets according to their requirements. Unfortunately, a number of governmental executives are in charge of doing this some of whom look upon giving affairs over to people through a tunnel vision. The result of the government’s dominance in this field is backwardness of the country in terms of building needed infrastructures, imposing billions of dollars in unnecessary cost on people, providing inefficient services to people, and, most importantly, depriving many Iranian youth from information technology and its advantages in terms of communication infrastructures in contact with other countries and domestic localities.

What must be done:
- Policies related to communication sector should be drawn up and approved by the Islamic Consultative Assembly (parliament) to pave the way for more investment in the field.
- The government’s motto in this field could be “Accessible communication for all.”
- Phone lines should be given to people in cities and villages on a daily basis so as to make providing global services possible at desirable quality and affordable price.
- Iran should turn into a producer and exporter of communication equipment.
- People should be allowed to invest in communication. If we calculated losses imposed on people due to high price of cellphone and low quality of related services, the result would be appalling. People should be allowed to invest in such fields as switching equipment, fiber optic cables, underground cables; as well as all kinds of telecommunication production and installation of necessary equipment.
- Government’s role in the field of Internet should be limited to making large-scale policies and supervision as is the case with other technical and economic affairs. Therefore, as a first step, the government should allow people to be active in all executive fields related to the Internet and reduce its control.
- The government should pave the way for better use of this modern tool through accurate planning to promote the country’s international standing while facilitating people’s access to the Internet. Access of students to the Internet will greatly influence scientific progress of the country. Therefore, all educational centers should be using this new technology as soon as possible.
- Due to enormous influence of electronic government on increasing efficiency, transparency and responsiveness and reducing costs; suitable plans should be formulated for more rapid realization of an e-government.
- Developing countries lag behind developed states in many scientific, technical and service fields to various degrees. Utilization of computer and computerized software has helped those countries fill the gap more effectively. The more our youth master computer and applied software, the existing gap would be filled in a better way.
- Electronic trade and software transactions through the Internet are among modern ways of scientific and economic cooperation that were not available to most countries in the past. Given high intelligence of the Iranian youth and their scientific capabilities, necessary facilities for expansion of such transactions should be provided while creating more jobs for young people, especially for university graduates.

Advancement of global information networks has brought more transparency to behaviors of different nations and the world’s public opinion has been an opportunity for unmediated and more widespread interaction.

Greatly involved
We are greatly active in the petrochemical and natural gas industries in Iran. We are involved in a project at Maroum, two big projects at Bandar Imam and one at Assalouyeh port. We have also been awarded a launch and separation plant for Mobin petrochemials. So we are involved in quite a wide area of the industry in Iran.

Markus Raab,
Managing Director Linde Engineering Division in Munich, Linde AG

Optimum Mix of Expertise
Close cooperation with local petrochemical companies, as well as the different contributors to those projects, will be the best way to maximize efficiency, through an optimum mix of capabilities and expertise.

Jean Bernard Lartigue,
President, Petrochemicals, ATOFINA, Total

A Fundamental & Lasting Recovery
Despite staggering blows, the global economy held together and growth resumed. Consequently, we have entered a welcomed period of excess capacity absorption, which is translating into supply tightness, producing reinvestment quality earnings.

Gary Adams
President CMAI, U.S.A.

A Glimpse at the Future
At each stage in the creation of this industry, emerging challenges were met with innovation. Unique technical, manufacturing, and commercial solutions were developed. Local business has grown to regional and today global scope.

Travis, Fielder President & CEO, Basell
New Opportunities

Deutsche Bank is rooted in Frankfurt, but its but its operations are spread around the globe,” that’s how Hans Herold, Deutsche Bank’s Managing Director of Structured Export Finance, opened his interview with us. A noted speaker at the Iran Petrochemical Forum, Herold based his presentation on innovative financing solutions. That matched the remarkable trade volume of Tehran-Berlin, as the Deutsche Bank executive noted, “Germany has traditionally been a leading trade partner of Iran.”

Global Handshake

We can accompany all major trade flows with our financing. We may also cooperate with all export credit agencies worldwide from Japan to the Americas. I should also mention that we understand export financing in more ways than the traditional way. In addition to financing simple exports from country A to country B, we try to make the best use of resources that the bank has and of the tools that exist in the market today. That means we see our function in solving a problem rather than providing a simple standard plain vanilla solution.

The Case of Iran

I think what we are doing here in Iran is a good example. We have organized and arranged for NPC a financing facility which gives NPC the possibility to source their goods on the their decision in a number of countries, and wherever they source, we have organized the financing. That means we have organized the kind of framework agreement where the structure has been laid down. We have had our discussions with the relevant ECAs in all the countries which are potential suppliers countries.

Now if the NPC decides that we buy in France or Italy or the UK, part of this finance will be available under the respective ECA cover. Cover available in different countries are limited in size, and for new projects in Iran huge amounts are required. We can provide these amounts only on the basis that we leverage the ECA cover by underlying structures. If you can dispose of high-quality receivables in your country deriving from oil, or from downstream products, these make a thorough basis for such structures. So, altogether on that basis we can provide very favorable financing for Iran’s new projects.

The Way Ahead

At the IPF, I have presented new visions on financing for petrochemical projects in Iran. New opportunities leading to new visions and new visions leading to new opportunities. This is the key message of the subject of the conference.

I think the position of the Deutsche Bank has been strong and will be strong. In Germany and possibly in Europe as well, we are probably considered by a larger part of the industry as the main bank intermediating the trade between the two countries.

We think the cooperation between Deutsche Bank and Iran forms a major part of our activities from Structured Export Finance’s point of view. We also have invested quite a lot in know-how and in manpower. We have found excellent partners, excellent qualification, trust and readiness to cooperate. I think only on the basis of this common trust which has been created, we could accomplish the goals we recently met. Together, we are looking into a bright future, in which we endeavor to have more goals accomplished and to broaden the base of our close partners.

By architecting structured export finance, Deutsche Bank sees its function in solving a problem rather than providing a simple standard solution.

Undoubtedly the role of the petrochemical industry in the economic development of the country and its position as one of the main options for sustainable development relying on oil and gas resources is clear to all.

Development of this industry requires huge investment. Over the past three decades and at specific junctures (1990s and 2000s) the authorities involved in the industry, having access to financial resources, have proven their mission in establishment of petrochemical complexes with an aim of developing non-oil exports. Another goal was to supply raw materials to the downstream industries and gain access to a growing share in global trade of petrochemical products.

First, we will take a cursory look at the current situation of the industry during the past year. The changes introduced in the management of the industry and employment of experienced managers has created new expectations in the community of Iran’s petrochemical industry.

In spite of enforcement of various international political and trade restrictions, attraction of foreign and domestic investments is on the agenda.

In order to accomplish a production level of 60 million tons in petrochemical complexes of the country (while the highest output under the previous governments stood at 40 million tons) is among the projects to be carried out by the petrochemical industry management.

Completion of 15 projects out of the 62 projects remaining from the Fourth and Fifth Development Plans with a progress of above 60% which include the following projects: Marvdasht urea and ammonia; Kurdistan petrochemicals; Mahabad petrochemicals; Takht-e Jamshid petrochemicals; Kavian petrochemicals.

Other activities include implementation of a formulated plan for launching thirty-six new projects in the future and providing the government with the blueprint to complete infrastructures aimed at attracting investment for construction of the above-mentioned units.

Creation of a Petrochemical Development Fund as one of the new initiatives of the petrochemical industry authorities for financing petrochemical projects has been among the activities of the new management in the past year.

After 50 years of ceaseless efforts, Iran’s petrochemical industry by adopting a new approach and by relying on giant hydrocarbon resources, and while taking advantage of the capabilities of domestic experts in different fields of the industry and to the existing opportunities, is expected to take solid steps towards development of petrochemical units by creating proper and beneficial grounds for domestic and international investors.

In continuation, we will take a more analytical look at the activities of Iran’s petrochemical industry.

Iran’s Petrochemical Industry Turns 50
Petrochemical industry is a 20th century and relatively young industry, let’s say compared to steel industry. It may be hard to decide the precise birthday of an industry but as for the petrochemical industry commercial utilization of its products started when the world was breathing a sigh of relief with the end of World War I. The first petrochemical products were supplied in 1918.

In Iran, the timing coincided with the final years of the rule of Qajar Dynasty (1917 - 8), that is to say when the country was embroiled in a state of commotion as a result of breach of neutrality and occupation of Iran by the Allied Forces.

Some 16-17 years had passed since the signing of the D’Arcy petroleum concession (granted by to Britain’s William Knox D’Arcy by Iran’s Mozaffar al-Din Shah); 10 years had passed since Well Number 1 of Masjid Soleiman had yielded petroleum; and 6-7 years had passed since the operation of Abadan Oil Refinery.

As the world generated more petrochemical products, in 1920s polymerization (chemical reaction in which two or more molecules combine to form larger molecules that contain repeating structural units) was discovered and the technology of producing substances from oil liquids and natural gas started developing.

In those times the D’Arcy Concession was abolished and a new agreement was signed to extend the petroleum concession until 1993.

World War II despite all the associated catastrophes was good for the petrochemical industry. It developed and boosted up a new petrochemical industry and out-rivaled many other industries in terms of growth.

The timing coincided with the occupation of Iran by the Allied Forces who connected the north to the south to build a victory bridge. Obviously, there was no talk of petrochemicals in Iran at this time.

Petrochemical industries continued to develop in the world so much so that only in the United States their production exceeded 25 percent of the global production. The number of petrochemical plants in the U.S. in 1951 exceeded 90.

In Iran it was the year 1329 solar hegira (1950-51) and Iran was set to nationalize its oil industry. Petrochemical industries were still not an issue in Iran.

From this time on, the petrochemical industry began a rapid growth in the world and raw materials were produced for manufacture of various types of products such as acrylic, cloth, and mixed plastics with a marked rise in their consumption.

The first relatively consistent organization which had something to say and something to do about petrochemicals in Iran was the Chemical Fertilizers Corporation. It started construction of a chemical fertilizers plant in Marvdasht in 1958.

The plant which is part of Shiraz Petrochemical Complex today was made operational in 1963.

In the 2015 Vision Plan, a petrochemical output worth $36 billion has been forecast of which $20 billion would go to saleable products.

Attracting foreign investment requires lifting of the international sanctions against Iran.

By: Saeed Razmkhah
Iran was generated with a delay of 47 years compared with its first product in the world. Also, it entered the global market with a delay of 35 years since commercialization of petrochemical products in the world.

In 1964, all the activities related to creation and development of petrochemical industries were delegated to the National Iranian Oil Company (NIOC) for which purpose a National Petrochemical Industries Company (NPC) was established.

In 1930 and with the discovery of polymerization and alkylation, several other petrochemical products were made out of oil and gas helping the industry to make even further progress.

The term 'petrochemicals' was used for the first time in 1942 by some producers of petrochemical substances from oil and gas.

World War II triggered development of the new petrochemical industries so that within a decade after 1940 and 1950 petrochemical products in the United States constituted more than 25 percent of the total chemicals production in the world. Fifteen years later the figure reached 50 percent.

Today several thousands of products are made of oil and gas and life for humankind without petrochemicals would be very hard - if not possible.

The idea of creating petrochemical industries in Iran is 50 years old. In late 1930s (1950s), the Ministry of Industries and Mines considered establishment of a chemical fertilizers plant out of gas in Marvdasht, in Fars Province. In 1958 the contract for construction of the factory was signed and the execution of the project was delegated to the Chemical Fertilizers Corporation.

The plant went on stream in 1964. A year later the law on creation of NPC under the umbrella of NIOC was adopted. It was also decided that all the activities related to creation and development of petrochemical industries should come under the supervision of NIOC. In 1965, the law on development of petrochemical industries was also approved.

Iran is in possession of 9 percent of the oil reserves and 16 percent of the gas reserves of the world. The petrochemical industry has drawn the attention of Iranian policymakers and planners from the outset due to its relative privileges and creation of value added. Although the development of this industry has been in need of huge investments and educated manpower, however its importance in growth of the national economy has paved the way for efforts to expand the industry.

The development trend of the petrochemical industry in Iran covers six specific stages:
1. Inception (1963)
2. Early Development (1964 - 1978)
6. Privatization and Turning into a Sovereign and Supervisory Organization (2009 – till now)

Inception started in 1963 with the operation of the chemical fertilizers production unit at Shiraz Petrochemical Complex. One year later the National Petrochemical Industries Company (NPC) was established. In Early Development stage and till before the victory of the 1979 Islamic Revolution the petrochemical industry was developed. Among the objectives of this period was to meet domestic demand for chemical fertilizers and some basic chemical substances such as soot, sulfur, liquid gas, caustic soda, carbonate, sodium bicarbonate, PVC, and plasticizers.

A construction plan for the petrochemical complex in Bandar Imam (former Iran Nippon) was done. Moreover, the operations to construct the largest petrochemical center, namely Bandar Imam Petrochemical Complex were halted. The only important activity in this period was completion of Shiraz petrochemical development plan.

Revival and Reconstruction stage started with the implementation of the First Five Year Development Plan (FYDP) of the Islamic Republic of Iran (1989 – 1993) and was followed up with reconstruction of centers damaged during the war. The aged petrochemical complexes were gradually repaired and resumed operation. In the meantime, a number of major projects such as Isfahan and Arak were launched and that of Bandar Imam was completed.

During the Second FYDP (1995 – 1999) the projects remaining from the First FYDP were commissioned and as a result the annual petrochemical output increased from 2.4 million to 11 million tons.

The Leap, Stabilization and Development stage started from the year 2000. Benefiting from the experiences of the First and Second FYDPs and implementing the Third and Fourth FYDPs, construction of numerous petrochemical centers started.
The following petrochemical complexes reached production stage during this time: Tabriz, Urmia, Khorassan, Bu Ali Sina, Khuzestan, Bistoun, Fanavaran, Amir Kabir, Shahid Tondguyan, Marouan, Pars, Zagros, Atya Sasol, Nouri (Borzuyeh), Pars, Jam, Kermanshah, Laleh, Karoun, and Mehr.

Moreover, special attention was paid to operations such as optimal utilization of the existing potentials; development of exports; promotion of petrochemicals’ status in non-oil exports; and expansion of activities of the private sector.

The preliminaries for Privatization and Turning into a Sovereign and Supervisory Organization stage started from 2007 and upon communication of the executive policies of Article 44 of the Constitution (on privatization). Based on these policies, a number of companies and complexes were transferred to the private sector separately. With the formation of the Petrochemical Holding Company including the untransferred companies and complexes, it was agreed in 2009 to transfer the entire company to the private sector and continue the activities of NPC within a sovereign and supervisory organization.

NPC is one of the four main companies operating under the Ministry of Petroleum. According to the Articles of Association, the General Assembly of shareholders is chaired by the President and the Board of Directors is chaired by the Minister of Petroleum. Of course, with the implementation of Article 44 of the Constitution, some changes are likely in the structure and mission of NPC.

Establishment of National Petrochemical Industries Company: The National Petrochemical Industries Company owes its existence to the Ministry of Economy, the National Iranian Oil Company and above them to the Plan and Budget Organization.

In addition to their individual efforts, the above-mentioned three bodies founded a High Council of Petrochemical Industries in a collective effort with the responsibility of launching feasibility studies on creation and development of petrochemical industries in Iran.

Incompliance with this effort, the Plan and Budget Organization approached France as a first step. The French Institute of Petroleum or Institut Français du Pétrole (IFP) as it is known in French was assigned by the Plan and Budget Organization to study the plan on generating petrochemical industries in Iran.

IFP submitted its proposal within a preliminary report to the Plan and Budget Organization which led to the signing of an agreement between the two sides in 1963. In a report prepared by the Plan and Budget Organization concerning its activities at the outset of the Third FYDP, it is said: “A plan on feasibility study of petrochemical industries in Iran was approved by the Board of Directors of the Organization at a cost of 6.2 million rials last year (1963). “Institut Français du Pétrole (IFP) agreed to study the present and future feasibilities of the petrochemical industries in Iran within the next ten years and report the outcome of its research to the Plan and Budget Organization within 10 months.

As a result of failure to provide the petrochemical units with the required feedstock they are currently operating at 70 to 80 percent of their output capacity.

Razi, Abadan, Kharg, Farabi, and Bandar Imam Companies and Carbon Iran Factory were established with foreign partnership.

In compliance with this effort, the Plan and Budget Organization approached France as a first step. The French Institute of Petroleum or Institut Français du Pétrole (IFP) as it is known in French was assigned by the Plan and Budget Organization to study the plan on generating petrochemical industries in Iran. IFP submitted its proposal within a preliminary report to the Plan and Budget Organization in 1963. In a report prepared by the Plan and Budget Organization concerning its activities at the outset of the Third FYDP, it is said: “A plan on feasibility study of petrochemical industries in Iran was approved by the Board of Directors of the Organization at a cost of 6.2 million rials last year (1963).

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"IFP completed its preliminary report and submitted it to the Plan and Budget Organization. Consequently a contract was signed and exchanged between IFP and the Plan and Budget Organization and thus the petrochemical industries entered into a new stage."

In 1963 the Ministry of Economy too followed up plans to create petrochemical industries in Iran. The Ministry which had Shiraz Fertilizer Plant under its supervision, proposed the launch of a High Council of Petrochemical Industries to the Plan and Budget Organization and the NIOC. After winning the consent of these two organizations, the Ministry submitted the Articles of Association of the High Council to the Cabinet Ministers who endorsed the charter on 19 December 1963.

The charter defined the duties of the High Council of Petrochemical Industries as creation and administration of petrochemical industries with public and private sector investments, reviews and verification of the studies related to petrochemical industries and authorizing the private sector to launch petrochemical industries.

The High Council of Petrochemical Industries was comprised of the Minister of Economy, NIOC Managing Director, and Managing Director of the Plan and Budget Organization. It was chaired by the Minister of Economy.

Establishment of NPC: The law on creation of the National Petrochemical Industries Company was approved not as an independent law but within a Note to the Amended Budget Law of 1964. Note 64 of the Law adopted on 26 July 1964 stated: “As of adoption of this law, all the activities conducted under the title of creation and development of petrochemical industries shall come under the supervision of the National Iranian Oil Company. To this end, the NIOC shall launch a subsidiary company called the National Petrochemical Industries Company (NPC) whose Articles of Association shall be adopted by the Council of Ministers after it is approved by the High Council of Petrochemical Industries.”

The law also clearly cited the history of creation and fate of the Chemical Fertilizers Company or the Petrochemical Corporation: “All the rights of the government in the Chemical Fertilizers Company founded in compliance with Note 36 of the Budget Law of 1959 and according to the Articles of Association approved by the Council of Ministers on 21 March 1959 shall be delegated to the NIOC. The NIOC shall evaluate all the facilities, claims and assets (in cash and kind) of the Chemical Fertilizers Corporation (Petrochemical Corporation) as the capital of the Corporation and shall introduce necessary changes in the Articles of Association of the Corporation upon the approval of the High Council of Petrochemical Industries.”

Composition and adoption of the law on creation of the National Petrochemical Industries Company was the most important task of the High Council of Petrochemical Industries.

National Petrochemical Industries Company and First MD: After the adoption of the law on creation of the National Petrochemical Industries Company the appointment of the first managing director who would play a significant role in founding the company had to be done. Among various candidates, the Managing Director of the Plan and Budget Organization Safi Aslia proposed Engineer Bagher Mostofi. After some negotiations, Mostofi accepts the offer.

The first relatively consistent organization which had something to say and something to do about petrochemicals in Iran was the Chemical Fertilizers Corporation.
Members of the group were employed by NPC in April 1965. Economy Council and Petrochemicals: The calendar year 1343 (1964) was a lucky year for the petrochemical industries in Iran. The High Council of Petrochemical Industries followed up the launch of another petrochemical unit. The NPC had just been established and was supposed to pursue the launch of petrochemical industries. In the meantime, the Plan and Budget Organization pursued the creation of petrochemical industries at the Economy Council.

The Managing Director of the Plan and Budget Organization said:

"...From the oil revenues some projects were considered out of which the most appropriate ones should have been picked... There were two ammonia production projects at a total cost of $20 million. There were three other projects worth $30 million altogether, namely sulfur production, carbon black, and methanol production."

Minister of Agriculture also said:

"Assistance should also be extended to the Chemical Fertilizers Corporation..."

This was while about seven months earlier, a law had been adopted on establishment of the NPC according to which all the activities on creation of petrochemical industries came under the supervision of NPC and at the same time the Chemical Fertilizers Corporation had been ceded to the NIOC!

Law on Development of Petrochemical Industries: When the NPC was established its main concern was the projects that had to be implemented. In order to open the way for NPC to do joint business with Iranian or foreign companies, the law on development of petrochemical industries was approved on 11 July 1965.

The law states:

“The National Petrochemical Industries Company is hereby authorized to launch joint partnership with Iranian or foreign companies for manufacture of petrochemical products."

This law was the key to the development of petrochemical industries at that time. The NPC had no experience in implementing the projects and administration of production complexes. All the NPC projects were implemented by relying on this
law and utilizing foreign partners till 1978-79 which marked the culmination of the Islamic Revolution.

**Status of NPC at Islamic Revolution Juncture:** The National Petrochemical Industries Company was one of the four main companies operating under the Ministry of Petroleum. When the Islamic Revolution of Iran triumphed (Feb, 11, 1979), the NPC was only 15 years old. At the end of the 1330s (1961-1966) the Ministry of Industries and Mines and later the Ministry of Economy implemented the project on construction of Marvdasht Chemical Fertilizers Plant in Fars Province.

The factory was inaugurated in October 1963 and one year later the law on creation of the NPC was approved by the Majlis (Parliament). Until before the victory of the Islamic Revolution, the development of the industry was made possible within three development plans from 1964-1977. This was accompanied by implementation of projects to produce chemical fertilizers by using associated petroleum gas as well as production of such items as soot, sulfur, liquid gas, caustic soda, carbonate, sodium bicarbonate, PVC, and plasticizers (DOP) with the main aim of meeting domestic needs.

Construction of Razi (Shahpur), Abadan, Farabi, Carbon Pardaz (Iran), Kharg, Farabi (Iran Nippon) petrochemical complexes as well as the development projects of Shiraz Petrochemical Complex and construction of a major portion of Bandar Imam (Iran-Japan) were among efforts accomplished in this period.

Since its inception (1963) till the triumph of the Islamic Revolution (1979), Engineer Bagher Mostof served as the Founder and Managing Director of NPC.

Razi, Abadan, Kharg, Farabi, and Bandar Imam Companies and Carbon Iran Factory were established with foreign partnership. The shares of foreign partners in Razi Petrochemical Company were transferred to the NPC in 1974 and those of other companies in the years after 1979.

**Manufacturing Units: In 1978, Shiraz, Razi, Abadan, Kharg, Farabi complexes as well as Carbon Pardaz (Iran) and Polika Factories had become operational. In that year, the total output of the NPC was 1.6 million tons (intermediate and final products).**

**NPC during Sacred Defense Period (1980 – 1988):** From the second half of the calendar year 1359 (October 1980 – March 1981) till the first half of 1367 (April - September 1988), the main activities of the NPC comprised of providing logistical backup for Iranian soldiers during the Iraqi imposed war. In the meantime, it was engaged in design and engineering process as well as land preparation for Arak and Isfahan petrochemical complexes.

The record card of the NPC in 1367 (1988 – 1989) was exceptional from some points of view. In the first half of 1367 (April – Sept. 1988) the company units like the previous years, were actively boosting the defense capability of Iran in the war fronts. In the second half of 1367 (Oct. 1988 – March 1989), following Iran’s acceptance of the UN Security Council Resolution 598, the NPC started great efforts for reconstruction and renovation of petrochemical manufacturing units and complexes. The NPC managed to put most of the petrochemical units damaged during the war back to work.

**Manufacturing Complexes:** During this time, despite the relative standstill in development activities and concentration on reconstruction and renovation of the manufacturing units, the following complexes were still on production line: Shiraz, Abadan, Polika Factory, Razi Kharg, Pardaz (Iran), Farabi, and Carbon Iran Factory.

In 1980, despite the foreign exchange shortages as well as other complications caused by the war, Shiraz Petrochemical Complex reached its highest output after the Revolution. Concurrently, renewed production in Phases 1 and 2 of Razi Petrochemical Complex started. (1361-1983) and the second half of the calendar period, the Petrochemical Industries Design & Engineering Company was created within Methanol 1 Project and for the first time in Iran, the Comprehensive Plan was implemented.

**Petrochemical Projects: During the said period, the entire investment by the NPC reached 420 billion rials. The company managed to complete Shiraz Petrochemical Development Plan (Ammonia & Urea 2) and Chloalkali. It also started implementation of Shiraz methanol, Arak Petrochemical Complex, Tabriz Petrochemical Complex, Razi ammonium phosphate unit, and development of Carbon Iran projects. Moreover, during the same period, the Petrochemical Industries Design & Engineering Company was created within Methanol 1 Project and for the first time in Iran, the Comprehensive Plan was implemented.**

**Manpower and Training:** In 1980 the number of the NPC staff reached 11200 (3700 office employees and 7500 workers). Also, the first center for professional training on petrochemical industries started its work by admitting a number of trainees. During these years, different training courses were held amounting to 110,000 different training courses were held amounting to 110,000

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**Manufacturing Complexes:** During this time, despite the relative standstill in development activities and concentration on reconstruction and renovation of
NPC from the End of Imposed War to Start of 1388: The first FYDP of the NPC (1989 – 1993) started under the difficult conditions after the Sacred Defense period, including the economic sanctions against Iran with concentration on reconstruction and renovation of production units damaged during the war.

All the damaged production units except for Phase 2 of Bandar Imam Petrochemical Complex were reconstructed and went on stream in 1989 and 1990.

Phase 2 of Bandar Imam Petrochemical Complex which was one of the most important projects at the time was also commissioned in early 1373 (March 2004 – March 2005). The development projects of the first plan included 10 new ones.

The experiences earned from the implementation of the first plan encouraged the planners at the NPC to formulate the second plan (1995 – 1999) with an aim to increase profit generation, promote exports, expand privatization, raise production, and diversify products by introducing new and special items.

In those years, several sales offices were set up in petrochemical target markets such as India, China, Singapore, and the UAE to maintain an effective presence in international markets.

The plan included 10 new projects to supply diversified products, five projects on development and provision of petrochemical units’ feedstock, and one project on production of concentrated lateral services.

The third FYDP of the NPC (2000 – 2004) in addition to a boost in production and sales as well as promotion of the status of the petrochemical industries in non-oil exports marked a new stage towards globalization of the NPC activities.

Reconstruction and renovation of old units, maximum utilization of domestic engineering-technical capabilities, equipment of special economic zones, export promotion, privatization, support for private sector investment, and expansion of research and development (R & D) were among the goals of the third plan.

In this plan, implementation of new projects with an aim to manufacture products with more value added and utmost use of ethane feedstock and gas liquids was considered. Moreover, Pars Special Economic-Energy Zone due to proximity to South Pars natural gas resources was identified as a new and appropriate location for execution...
of new petrochemical projects. In formulation of the fourth FYDP (2005 – 2009), the NPC stressed on accomplishment of the following goals:

- Priority of using gas feedstock, gas condensates, natural gas liquids (NGL)
- Acceleration in further utilization of joint gas feedstock resources
- More accelerated execution of privatization goals
- More expanded absorption of technical knowhow and engineering services
- Timely implementation of projects for the cause of more active presence in international markets
- Acceleration in substituting (oil exports with) non-oil exports

The National Petrochemical Industries Company owes its existence to the Ministry of Economy, the National Iranian Oil Company and above them to the Plan and Budget Organization.

Petrochemical Complexes: After the acceptance of the UN Security Council Resolution 598, despite the difficult conditions including the economic sanctions, all the damaged production units except for Phase 2 of Bandar Imam Petrochemical Complex were reconstructed and went on stream in 1989 and 1990.

With the gradual operation of the production projects forecast in the first FYDP (1989-1993), second FYDP (1995-1999), and third FYDP (2000-2004) the total output of (intermediate and final) petrochemical complexes at the end of 1387 (March 2009) surpassed 30 million tons (the figure also covers the output of Arak, Isfahan and Kharg complexes).

In other words, the commissioning of new projects raised the NPC output from 2.4 million tons in 1989 to 30 million tons in 2009, namely a growth rate of 14 percent annually.

During these years, the company sales too grew considerably after introduction of new and diversified products to the market. In 2008-2009 domestic sales jumped to 7.5 million tons worth 40,000 billion rials. Also, export of petrochemical products reached 12.3 million tons with an average growth rate of 18 percent and a value of $7.8 billion or an average growth rate of 31 percent.

The share of petrochemicals in total non-oil exports reached 43.2 percent in 2008-9 from 2.7 percent in 1989. Its share in GDP also rose from 0.18 percent to 1.45 percent over the same period.

During this time numerous complexes and units were made operational.

Fourth FYDP (2005 - 2009) and Vision 2015: In formulation of the fourth FYDP, the NPC priority has been given to the use of natural gas feedstock, ethane, gas condensates, NGL, as well as lateral feedstocks such as gas condensates, ethane, gas condensates, as well as lateral feedstock resources, and implementation of new projects by benefiting from lateral services concentrated in Pars Special Economic-Zone and Special Petrochemical Economic Zone have been underlined.

Concurrently with the compilation of the fourth FYDP, the NPC by evaluating its capabilities and the relative privileges of the country drew up a long-term perspective for its activities. With the implementation of this plan the petrochemical industry is expected to play its due role as a pioneer in Iran’s industries and join the list of major producers of petrochemicals in the world.

In the 2015 Vision Plan, a petrochemical output worth $36 billion has been forecast of which $20 billion would go to saleable products. Another target in the Vision Plan is to attract investment in and development of downstream industries.

The volume of investments in petrochemical industries in the fourth FYDP is estimated at $11 billion. Upon a decision by the Cabinet Ministers, in a bid to create a balance in sustainable development and expand main and downstream petrochemical industries to deprived provinces in the west of the country ethane transfer pipeline from South Pars units were put on the agenda. The project is currently at the stage of engineering and logistics. The NPC hopes to launch five polymer complexes each with a capacity of 300,000 tons annually in target provinces.

Challenges Facing Petrochemical Industries: Some Recommendations: The petrochemical industry plays a very significant
role in Iranian economy due to lucravity and diversification of products and high profitability and employment generation.

However, due to some mismanagement in oil industry planning, many of the newly established petrochemical complexes are faced with delays in providing feedstock or failure to supply them with sufficient feedstock.

As a result of failure to provide the petrochemical units with the required feedstock they are currently operating at 70 to 80 percent of their output capacity. In other words, shortage of feedstock is the main cause of the difference between nominal capacity and actual output. Moreover, lack of command over technical knowhow cause delays in timely implementation and increased costs of the petrochemical projects. This in turn undermines the initial cost-effectiveness of the projects and reduces its productivity at the time of commissioning. All these factors are tantamount to inconsistency between the hardware and software which results in a project’s becoming uneconomical.

Among other challenges discouraging the private sector from investment in oil and petrochemical industries is ambiguity in the price of feedstock and duration of the contracts to supply feedstock.

A review of these policies shows that unplanned transfer of the companies under this industry has persuaded investors against participation in these projects. ‘Justice’ shareholders by adopting a money making outlook at the share interests somehow prevent implementation of new development and investment projects at the cited companies. Furthermore, the administration of the said companies by these unskilled shareholders has challenged the future and planning in these companies. In other words, the presence of these shareholders is an obstacle in the way of private sector investment in these companies per se.

On the other hand, the private sector does not have sufficient financial resources to finance investment projects. Financing the investment projects is not thoroughly delegated to the investor. Granting government facilities in high quantities and financing of projects by providing facilities can play an effective role in improvement of the condition of petrochemical industries’ production and investment. This is especially true because development of production and investment especially in the oil, gas and petrochemical fields which have a big share in gross domestic product (GDP) can help pave the way for economic growth and development.

Since the petrochemical industry in Iran has been privatized to a great extent and the government is reluctant to invest in this sector, it is believed that the government should provide the necessary infrastructure and grounds for investment of the private sector instead of direct investment by itself.

This can be realized in two ways: 1) domestic investment 2) foreign investment. Attracting foreign investment requires lifting of the international sanctions against Iran. Sanctioning Iran has not only prevented attracting new foreign investments but also made previous investors to leave the country.

The Western sanctions which targeted Iran’s oil and gas sectors led to departure from Iranian oil and gas market of European oil companies such as Shell, BP, Stat Oil, Total... Instead it opened the way for Chinese companies such as China National Petroleum Corporation, Petro China, and even Sinopec to get involved in Iranian projects.

Although it is hoped that the country’s petrochemical output would reach 100 million tons in 2015, yet the pause caused by the international sanctions is expected to delay realization of the goal. With the coming to power of the new government and gradual easing of the sanctions, a clear prospect seems to have been created for the country.
Petrochemical Industries Investment Company started its operation in the calendar year 1370 (1991-92) with an aim of attracting public investment in the downstream oil, gas and petrochemical sectors. The main activities of the company are currently focused on three areas: production; technical, engineering and commercial services; and investment services. Presently the finished cost of the company’s investments is estimated at around 2 thousand billion rials. According to estimates, the value of stock share basket has increased from 730 thousand rials to 1500 billion rials.

Production Activities

Petrochemical Industries Investment Company by possessing management shares in the two large carbon black producing companies (Carbon Iran and Pars Carbon Black) as the main carbon black producer produced about 50000 tons of the product last year. Also, in the completion of production value cycle and through investment in Sahand Rubber Company it has entered the field of conveyor belts and rubber products.

In another sector, by making investment in Shimi Baft Company, it has embarked on producing methyl tertiary butyl ether (MTBE) and has addressed the country’s major need for this product in recent years. Shimi Baft Company too, in an effort to complete the production cycle, has made investment for the production of methyl ethyl ketone (MEK) at Shimi Tex Arya Company.

Technical and Engineering Services

Petrochemical Industries Investment Company in an effort to develop, repair and maintain oil, gas and petrochemical units has taken measures for the establishment Firmco Engineering and Installation Company; Pars Company; and Engineering and Industrial Self-Sufficiency Company (Ehdas va Khoshkafaei Sanaye) which have always been known as famous brands in offering relevant services. Also, Techinco Technical Inspection and Corrosion Control Company is active in the field of monitoring which has so far recorded acceptable achievements and performance.

Commercial Activities & Investment Services

Petrochemical Industries Investment Company in an effort to support production companies has formed Hamoon Kish and Hamoon Trade Development companies to maintain presence in commercial activities and investment market.

Future Activities

Petrochemical Industries Investment Company, given the existing technical and financial potentials, is currently investigating new investment projects in the field of oil, gas and petrochemicals and has taken primary steps in line with realization of its plans.
Mohammad Reza Nematzadeh, deputy oil minister and president of National Petrochemical Company (NPC), had a few days overloaded with speeches, meetings, negotiations and interviews. IPF 2000 was an opportunity for Nematzadeh to present a report of NPC’s achievements between the two annual forums, listen to questions raised by the international community and reposition his company according to the necessities of the new millennium. Here is all about NPC as stated by NPC Chairman:

Following the success of IPF 1999 and in commemoration of the third millennium, NPC decided to organize the second annual petrochemical forum and to call it the Petrochemical Industry in the New Millennium. IPF 2000 addresses the most pressing issues facing the petrochemical industry today including production, marketing, prices, the latest technologies, feedstock, environmental issues and regional cooperation. Therefore, the event is hoped to create an appropriate atmosphere for constructive exchange of ideas between producers, consumers and the owners of technology.

At the beginning of the year 2000, two projects, Ethanolamine in the Arak Petrochemical Complex with a capacity of 30,000 tons/year and the Kharg Methanol with a capacity of 660,000 tons/year were brought on stream, increasing NPC’s production capacity to about 15 million tons/year. The Bandar Imam Parxylene Project with a capacity of 180,000 tons/year is being commissioned and will start production shortly. The 500,000 tons/year MTBE project will also come on stream in early 2001. Implementation of the Amir Kabir Petrochemical Complex, comprising of 520,000 tons/year of Ethylene, 140,000 tons/year of high density Polyethylene, 160,000 tons/year of Polypropylene and 600,000 tons/year of linear low density Polyethylene, has already started and the installation of the high density Polyethylene unit is under execution.

With regard to the development of its new projects, NPC has signed $1.6 billion worth of contracts based on long term credit for PTA/PET, engineering polymers, olefin, aromatic, crystal melamine, methanol, ABS & butadiene, NGL and centralized utilities in the Special Economic Zone.

During the year 1999 to this date, NPC has succeeded to arrange $1.2 billion of financing facilities for implementing its development projects under the Second Five-Year Plan through major international banks.

Twelve new companies have been established for the implementation of these projects. Also, two centers for training management and technical skills, an overseas company for conducting international petrochemical trade and a research institute for executing research activities at the “pilot” stage have been established and have already started investment.

In terms of joint ventures, Amir Kabir Petrochemical Complex signed a contract with international and Iranian companies for two of its downstream units namely, a linear low-density polyethylene (LLDPE) unit with a capacity of 300,000 tons/year and a polypropylene (PP) unit with a capacity of 160,000 tons/year. NPC has also signed memorandums of understanding with interested international companies for the construction of a low density polyethylene (LDPE) unit with a capacity of 300,000 tons/year and a utility unit for the petrochemical plants which are to be executed in the South Pars Energy Zone.
Narrow and Wide

Global Players Here

So Far, So Good

Cost & Market Leaders

Competition is here to stay. If you are producing a narrow range of products, your marketing area must be wide and if you are producing a wide range of products, your marketing area may be narrow.

Koseh Alboot, Vice President, Polyethylene Business Unit, BOREALIS

“… is the best way to attract foreign investment. You can see from the participation of the big players that they take interest.”

Andrew Pettman, Director, Europe & Middle East Olefins Studies, Chemical Market Associates, Inc.

I was last in Iran ten years ago. Being back here again, I found the people very friendly and very helpful to get on with. So far, my visit has been very good.

Ian Green, Vice President, Simon Carves, England

“The Asian petrochemical industry is expected to grow at a very high rate in the next decade. Plants with available feedstocks will become cost leaders. The most important element of competitiveness will be cost of feedstock.”

Fabrizio D’Adda, Chairman & CEO, EniChem

Furthermore, agreements have been reached to carry out feasibility studies for joint venture investments with major international companies to construct two world-scale olefin and polyolefin plants based on ethane feed in Bandar Imam and Pars Zone.

To facilitate implementation of the projects in the Petrochemical Special Economic Zone, construction of central utilities including power plant, water treatment stations, storage tanks, industrial gas, steam boilers and sewage treatments is already underway. Design and site preparation of four large projects in the Pars Special Energy Zone is also progressing.

All of our production, commercial and engineering companies have now received ISO 9000 certificates. In addition, Isfahan, Tabriz, Arak and Khorasan Petrochemical Companies have also obtained ISO 14001 certificates for environmental protection achievements. It is planned that the rest of our companies will soon join the others in their move to form clean industries.

IPF 2000 particularly stresses on regional cooperation. Since the Middle East has become one of the premier petrochemical producing and exporting regions of the world and considering its existing capabilities and advantages such as abundant oil and gas reserves, an ideal environment has been created for cooperation amongst the countries.

While emphasizing our interest in entering joint ventures with qualified international companies for the development of Iran’s petrochemical industry, NPC invites all the international companies active in the fields of engineering, contracting, manufacturing and other related areas to form joint ventures with Iranian companies and have a long-term view toward the Iranian market. These companies will have priority in our future contracts.

Iran’s petrochemical industry is promoting its research activities and NPC welcomes cooperation with research centers and owners of technology. We express our readiness for joint investments in research and development.

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Lower Risks: There have been improvements in the risk rates of foreign investment in Iran. The country has advanced to 5th level from a previous 6th level in terms of investment risks. This is seen by foreign companies as an improvement.

Meanwhile, legal formalities for making investments in Iran will be decreased through deregulation and economic liberalization, which are on the government’s agenda. Proper measures should be taken in order to encourage foreign investment. In IPF ‘99, domestic and foreign investors were invited to participate in the country’s petrochemical projects. Following the invitation, 100% of the investments in polypropylene project and 60% in the linear polyethylene project were made by domestic investors.

The value of polypropylene project is $100 million and that of polyethylene is $150 million. The NPC has provided guarantees for these investments and has also undertaken to pay back the loans received for the projects. The value of the contracts signed with foreign companies last year was estimated at $1.6 billion, while this year, $1.5 million is to be absorbed. We are currently modernizing systems within NPC and our approach in this regard includes receiving proposals from other companies and choosing the best one.

NPC is aware of the fact that Iran and Saudi Arabia are the region’s leading powers in petrochemical industry. The Saudi Arabian company Sabic has shown interest in buying some petrochemical products from Iran, while it sells its products to downstream industries of Iran. Sabic interested to join NPC in joint ventures. Studies and negotiations are underway currently to establish long-term cooperation and investments between the two countries.

Petrochemical products made in Iran are able to compete with those of foreign rivals presented on the international market. Moreover, studies have shown that NPC is a viable company for international cooperation, joint ventures and for entering international capital markets.

If the country can attract $1.5 million in foreign investments each year, the objective of the Third Development Plan, which is absorption of $7.5 million at the end of the Plan (2005), would be fulfilled. At the same time, we can raise the production of petrochemicals up to 40 million tons per annum, and in this case, Iran has a share of 2-2.5% of the global market. This is a big challenge which necessitates the efforts not only by national media and public participation.

Currently, one-third of petrochemicals produced in the country goes for export and two-thirds of them are consumed domestically. Under the Third Plan, the opposite would happen; i.e. 30-40% would be used inside the country while 60-70% will be exported. In this line, we should invest on market research at the global level.
**Teaming up**

Selas-Linde builds any kind of petrochemical or refinery furnaces or incinerators as part of the Linde Engineering Group. Linde has four important contracts here in Iran including Bandar Imam #6 Ethylene Plant, Marun Ethylene Plant and Gas Separation Plant, and Assaluyeh Gas Separation Plant. We are setting up a joint venture company with an Iranian company which is highly specialized in furnace construction. We are teaming up in order to set up Selas-Linde Tehran Engineering Company for servicing the national petrochemical and refinery industries. For Marun and Bandar Imam #6 we are working together with EIED which is the engineering arm of OIEC.

**Realistic and Open**

There is absolutely a change of atmosphere in Iran. It is much more open and I would say it is also a result of economic success.

**More Cooperation, Less Confrontation**

Speaking of Iran-Germany relations, I hope that “Dialogue among Civilizations” would further strengthen ties. I believe both countries have so much to give each other and the best way to achieve this is to cooperate on an open basis. As one of the speakers said, there should be “more cooperation and less confrontation”. This is also what we are looking for and that is why we are here to create a company in Tehran.

**Development Scheme**

Selas-Linde expects to have a base in Iran and serve the national industry and also secure contracts. More or less 40 percent of each contract would go to the local market here, another 40 percent would go to us and the remaining 20 percent will be sourced from other Iranian suppliers in the Iranian market. We have a scheme to develop over the years the Iranian portion and we will go back and only supply basic engineering. But we want to be present in the market for the business in the coming years.

**Friendly and Globalized**

IPF is quite helpful in attracting foreign investment. It’s a good forum to exchange views, to meet people, and to negotiate cooperation.

You can see from the participation of big global players and huge operating companies that they take interest. These are the companies that Iran has to look for because cooperation has to be done at these operating levels.

**We have a scheme to gradually develop the Iranian content of contracts until they are fully Iranian**

Five years ago when the price of oil was a lot lower, it had problems with the state budget because it was built on a high oil price. But now apparently the state budget has been built on an oil price which is not far from reality. The country can use the revenues to invest in plants. It is very interesting for companies like ours to be here to set up a joint-venture company because we believe it will continue in the years to come.

**Right Place, Right Time**

Ali Ashraf Afkhami is the chairman of Petrochemical Industries Investment Company (PIIC). Studying both engineering and management and long serving in the industrial sector have provided Afkhami with a vision of its competitiveness and privatization.

IPF 2000 is held concurrently with the advent of a new century as well as a new millennium. The world is rapidly changing and all visible walls and borders are disappearing one after another. Satellite waves have penetrated all spots. Continents and countries have grown even closer. Remarkable political, social, technological and economic developments have left deep imprints on our lives. We are well aware that geopolitics of the world greatly changed in the 20th century as a result of two world wars. New countries have emerged and regional unions have been formed. New orders have replaced the old ones. As democracy is further enhanced, people take a greater role in sovereignty and decision making to democratize the trends. Organized economy is shifting to market economy. Factors such as the public sector, mobilization of public capitals, lowering state control and promoting the private sector’s status have become especially significant. The capital market and stock exchange are becoming more popular. Capital repatriation knows no geographical borders since overseas investment has become a usual practice. Establishment of stock exchange organizations, investment institutes, insurance companies and banks together with the utilization of modern methods have facilitated foreign investment.

Attaching further importance to product quality, lowering the final price, increasing the market share, presenting new products for different tastes have all led to a very tight competition among international companies. Survival in the presently competitive market requires research and development to present modern products and shortening the time needed to turn an idea into a product available in the market. However, what matters the most is that the striking progress of technology will continue. Developments in science, approach, behavior and relations will continue; each enforcing their own rules of the game. Accordingly, relative advantage is replaced by competitive advantage.

With a vision of its competitive advantages, within the past decade the Iranian petrochemical sector has become a significant part of domestic economy given the fact that this sector has experienced remarkable development in the number of plants, number of products and production capacity. The number of petrochemical plants has increased from 7 to 13. At the same time, the volume of final products has risen from 2.4 million tons to 13 million tons a year with the value moving from $33.5 million to $1100 million. Based on strategic plans so far devised, in the next 13 years the total volume of products will reach 48 million tons a year with the value of $10 billion. These developments require some $24 billion of investment.

Here, the role of investment companies in accelerating the privatization trend is undeniable. Privatization trend started in the Iranian petrochemical sector about five years ago.

The state no longer holds shares in some plants namely Abadan Petrochemical Plant (manufacturer of PVC), Farabi Petrochemical Plant (manufacturer of PA and DOP) and Iran Carbon Plant (manufacturer of carbon black).

Almost all of the technical and engineering services and repairs of petrochemical plants owned by the state are being performed by private companies.

Shares of Arak, Kharg and Isfahan petrochemical plants are being gradually presented to non-governmental entities and there are instances of issuing permits for the private sector and investment companies to invest in petrochemical projects.

We believe promoting private investment in the petrochemical industry requires certain regulations that must be completely observed in the implementation phase. We need to reshape the outlook of our country’s economy. This demands using the private sector’s

Continued on Page 63
Tough Competition

Role of Iran’s Natural Resources: Iran has formulated a challenging program of petrochemical developments. It is recognized that while the achievements of the indigenous petrochemical industry, with the National Petrochemical Company at its head, are significant, further support is needed. Many foreign companies have offered their expertise and support. Shell is certainly also interested in participating in the continued development of the Iranian petrochemical industry. One way that foreign companies can do this is by providing technology for projects being developed by the NPC. Shell’s leading ethylene glycols technology has been selected by two major NPC affiliates, Marun PC and Jam PC. Additionally, Shell is actively discussing a number of other projects in Iran, namely Olefins 8, Gas to Liquids and Olefins 6. We are confident that these projects, all of which are currently entering into the feasibility study stage, will progress to final decisions — to the benefit of all parties. Shell, for its part, is committed to bringing its substantial technical expertise and project management experience to bear on making the projects in which it is involved a success. We want to contribute to Iran’s aspiration to create wealth from its natural resources, thereby further raising living standards in the country.

Sustainable Development: However, the creation of wealth through economic development - in and of itself - is not sufficient. Economic growth does not guarantee prosperity if it is not attuned to societal aspirations. Only by integrating economical, environmental and social considerations - balancing short- and long-term priorities - can one hope to meet societal aspirations for a better life now and for future generations. Sustainable development is the key. It is a continuing balancing act. Sustainable development is about meeting present needs without compromising future prospects. Balancing competing demands is a key concept when considering how to contribute to sustainable development. We divide these demands into three different types: Creation of eco-

M. Al-Mady, Vice Chairman of the Saudi Basic Industries Corporation (SABIC), was a highly noted speaker of the IPF 2000. His presence in IPF 2000 not only demonstrated the significance that the Middle East’s petrochemical power attaches to development of NPC, but also served as a signal indicative of a mutual will shared by Iran and Saudi Arabia to expand regional cooperation in petrochemical industry. Al-Mady’s presentation and his exclusive interview with Iran International follow:

SABIC is a diversified petrochemical company with revenues of $6 billion and production exceeding 25 million tonnes/year of petrochemical and metal products. The company employs about 16,000 staffs worldwide. In addition to a few advanced facilities that nurtured the growth of SABIC in 1980s, three special circumstances had a great influence on the successful rise of SABIC’s early industrial development efforts. These were:

1. Relatively few resource-based, export-oriented chemical producers existed before the mid-1980s. This gave SABIC the time and room it needed to enter into new export markets and develop its future market positions.
2. Oil price fluctuations led to an unexpected increase in SABIC’s relative cost advantage compared to many other producers. In the early 1980s, anyone with relatively fixed cost associated gas feedstocks suddenly became highly competitive compared to many older naphtha-based plants located in the major market areas.
3. The explosive growth of Asian demand in the 1980s and early 1990s was another special circumstance that contributed to SABIC’s growth.

To further adopt an export-oriented approach, let us note that we are no longer alone. The market situation facing chemical exporters has become more crowded and competitive. Furthermore, the industry is leaner and meaner. Many old high-cost plants in Europe, North America and Asia have been retired and the relative cost advantage of a resource based export producer may be less than it was before. The explosive growth phase of Asian imports may have passed. Today’s petrochemical producers face more competition from the Middle East, Asian and Latin American exporters as well as greater self-sufficiency in major customer markets. As a result, export-oriented producers are now considering some additional ways to expand and develop their petrochemical business in the future.

Working with an Ambitious Neighbor

Iran-Saudi Arabia cooperation may lead to better economies for producing more downstream, value-added, petrochemical-based products in both countries.

Continued on Page 83
The second half of last century saw the migration of the basic petrochemical industry to the Middle East because of feedstock availability and competitive costs.

Mohammed H. Al-Mady
Vice Chairman & CEO, SABIC

("There was not too much emphasis on R&D. Perhaps it would be nice if next year we could have contributions from Iranian research institutes and universities because no doubt Iran is a little bit behind in this area.")

Haldor Topsoe,
Chairman, Haldor Topsoe A/S

To achieve its aspired share of the product markets Iran will clearly need to offer attractive feedstock prices as well as a low local cost base. Iran may also have to consider the optimum phase of projects by recognizing the pattern of developments.

Jeroen Van der Veer
Group Managing Director, Shell Group of Companies, Royal Dutch Shell

Maximizing Value

An Era of Belt-tightening

Research & Development

Financing for the Future

Iran Persian Gulf

Global Energy Market

Persian Gulf is a watery expanse 600 miles long, which separates Iran from the Arabian Peninsula and is one of the most important waterways of the world, which is 34 miles wide in the narrowest part. The Persian Gulf region is one of the richest parts of the world in terms of energy resources.

By the end of 2003, Persian Gulf littoral countries were in control of approximately 718 billion barrels proven crude oil reserves (more than 62 percent of total global crude reserves) and about 70 trillion cu. m. proven gas reserves (about 40 percent of total global reserves). Iran, Qatar, Saud Arabia, and the United Arab Emirates ranked the second, third, fourth and fifth in terms of gas reserves in the world after Russia.

Therefore, given global trends and willingness to replace natural gas for other kinds of due (because it is less pollutant), role of this region in global energy markets and supply of natural gas to the world through pipeline and as liquefied natural gas (LNG) will remarkably increase.

Middle East countries exported about 18.9 million barrels crude per day in 2003 accounting for more than 41 percent of the world’s oil exports. Persian Gulf littoral states enjoyed a specific status in this regard by exporting 17.2 million barrels crude per day. Among Persian Gulf countries, Saud Arabia alone accounted for half of crude export from the region (by exporting 8.4 million barrels per day) followed by Iran (2.6 million barrels per day), the United Arab Emirates (2.4 million barrels per day), Kuwait (2 million barrels per day) and Iraq.
During 2003, most oil exported from the Persian Gulf (about 90 percent) passed via Strait of Hormuz. Crude oil passing through Strait of Hormuz accounts for about two-fifths of global crude oil trade.

One of the most important points about Persian Gulf littoral countries is that they accounted for nearly all surplus crude oil production capacity in 2003 (as was the case in previous years).

Despite its role in the world’s energy markets, the Persian Gulf region has not yet gained its rightful status. Regional countries accounted for more than 62 percent proven crude reserves in 2003, but only about 27 percent of global production and 41 percent of global crude oil exports was accounted for by those countries.

Though these countries enjoyed about 40 percent of proven gas reserves, they accounted for less than 9 percent global production of this valuable energy carrier.

Undoubtedly, regional countries will be able to turn their potential capacities into active ones through correct planning and cooperation and play a suitable role in global markets.

Based on estimates of the US Department of Energy, daily production of Persian Gulf countries will reach 26 million in 2010 and 35 million in 2020. Therefore, share of Persian Gulf from global production of crude oil will increase from 27 percent in 2003 to 33 percent in 2020.

Energy Imports of Big Countries from Persian Gulf: Crude oil imports of the United States during 2003 included Saudi Arabia (71 percent), Iraq (19 percent), Kuwait (9 percent) as well as Qatar and the United Arab Emirates (less than 1 percent). Saudi Arabia increased crude exports to the United States from 1.55 million barrels per day in 2003 to 1.77 million barrels a day in 2003 while daily export of crude oil from Iraq to the US increased from 441,000 barrels in 2002 to 481,000 barrels in 2003. All in all, Persian Gulf region accounted for about 22 percent of net crude imports of the United States and supplied 12 percent of that country’s consumed crude oil in 2003.

Average crude import from Persian Gulf by European members of the Organization for Economic Cooperation and Development (OECD) stood at 2.6 million barrels in 2003, showing an increase of 200,000 barrels compared to a year before. EU’s biggest importer of crude oil from West European countries in the region included Saudi Arabia (52 percent), Iran (33 percent), Iraq (7 percent) and Kuwait (6 percent). Also, Japan’s average crude oil imports from Persian Gulf reached 4.2 million barrels per day in 2003. Dependence of Japan on Persian Gulf’s crude oil has increased from 57 percent in 1998 to 87 percent in 2003. Saudi Arabia accounted for about 30 percent of Japan’s imported crude from Persian Gulf in 2003 while the United Arab Emirates, Iran, Kuwait, Qatar as well as Bahrain and Iraq accounted for 17 percent, 12 percent, 11 percent, and 1 percent of Japan’s imported crude.

Iran enjoys high geopolitical status due to its position in the Middle East as a linking bridge between Persian Gulf and Caspian Sea. The country enjoys more than 130 billion barrels exploitable crude oil and gas condensate reserves as well as 26 trillion cu. m. exploitable gas resources; thus ranking the second in the world in terms of such natural resources and an undeniable role in global energy markets.

According to estimate of OPEC’s secretariat, global demand for primary energy sources will be on the rise until 2025. Although share of crude oil from international energy basket will fall from 40.1 percent in 2000 to 36.9 percent in 2025, oil will continue to be the world’s biggest source of energy. Share of gas will increase from 23.3 percent in 2003 to 29.9 percent in 2025 indicating increasing importance of natural gas and its exporters in global energy markets.

In view of the said estimates, production of crude oil will increase from 82.3 million barrels per day in 2004 (9-month average) to 114.6 million barrels per day in 2025. During the current year production by non-OPEC crude producers stood at 49.7 million barrels per day, which is expected to hit 56.5 million barrels per day by 2015 at an annual growth rate of 1.4 percent. However, production of non-OPEC producers will start to decline as of 2015 and final production of those countries will fall to 56.3 million barrels per day in 2025. Production of crude oil and gas by OPEC will increase from 32.7 million barrels per day during the current year at an annual growth rate of 3 percent to reach 40.6 million barrels per day in 2015. Starting from 2015, economic growth rate for OPEC members will rise to 4.3 percent per year and they will be producing 58.3 million barrels per day by 2025. Between 2003 and 2025, crude demand will increase by 35.4 million barrels per day and non-
An Excellent Production Basis in Iran

Iran, due to its vast natural gas deposits on the Persian Gulf, is in the fortunate position to have a reliable and at the same time low-cost raw material basis at its disposal to produce a vast variety of base chemicals.

Klaus Schneiders, Member of the Executive Board, Uhde GmbH

Financing in Advance

We have arranged for NPC a financing facility which enables them to source their goods in a number of countries. On that basis, we can provide favorable financing for Iran’s new projects.

Hans Herold, Managing Director, Structured Export Finance, Deutsche Bank

Adrenaline High

IPF provided a good occasion to inform international companies about the present state of the Iranian petrochemical industry and the government’s intentions.

Tyark Allers, Managing Director of Thyssen Krupp Engineering AG.

Amplification of Cooperation

“We are implementing a water supply project and also the Third Ethylene Plant for Bandar Imam Petrochemical Complex. We are looking forward to intensifying our business here with Iran and NPC.”

Walter Sumereder, Senior Vice President, Va Tech Wabag GmbH

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- Ethylene Glycol (EG)
- Olefins
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OPEC members will be capable of only producing 18.6 percent of that figure. Therefore, OPEC producers will have to supply 81.4 percent of that demand. Among OPEC members, Persian Gulf member states of the OPEC members will be playing a more prominent role in supplying needed crude to the world. What differentiates them from other crude producers is:
- They enjoy about 63 percent of the world’s total proven crude oil reserves and 45 percent of those reserves is located in three countries, that is, Saudi Arabia, Iran and Iraq.
- Average production cost in those countries is less than 2 dollars per barrel, which is the lowest crude production cost in the world;
- To produce one barrel crude oil per day, Persian Gulf member countries of the OPEC, 5,000 dollars should be invested, which is the lowest investment figure for the world’s oil fields.

The above figures show that the need of global economy to Persian Gulf crude oil will continue to increase. In 2003, global natural gas production stood at 2.6 trillion cu. m. with Persian Gulf countries accounting for 8.9 percent total global natural gas output. Meanwhile, the region enjoys about 40 percent of proven natural gas reserves. South Pars, as the world’s biggest independent gas field enjoys over 15 percent of proven natural gas reserves of the world with Iran and Qatar accounting for about 30 percent of proven gas resources of the world. Due to raising concerns about environmental pollution, consumption of natural gas is projected to experience the highest growth among fossil fuels over the upcoming years, so that, global demand for natural gas reserves will hit 4.9 trillion cu. m. by 2025.

During that period, demand growth in two major natural gas markets, that is, Europe and Asia-Pacific region will stand at 70.3 percent and 105.3 percent, respectively. During the said period, production in Europe will decrease from 314.4 billion cu. m. per year to 300.3 billion cu. m. and, in contrast, natural gas demand in that region will hit 543.9 billion cu. m. in 2025. Production growth rate in Asia–Pacific region will equal 82.5 percent due to booming economic in China and India, but natural gas supply will fall short of demand by about 130 billion cu. m. and Persian Gulf will have to meet the lion’s share of that demand.

Economic growth in Southeast Asia, especially China, during past years has had a great role in increasing global oil demand. During first half of 2004, oil demand in China increased 17 percent and is projected to grow at an annual rate of 3 percent in the long run. In that case, China’s oil imports will exceed imports by member countries of the Organization for Economic Cooperation and Development (OECD) and will even reach 10.5 million barrels per day by 2020. At that time, China’s crude imports will exceed total imports of Japan, South Korea, Australia and New Zealand. Based on estimates by OPEC’s secretariat, gross domestic product of China will equal 24 trillion dollars by 2025, surpassing corresponding figure for North America by 22 trillion dollars and that of Western Europe by 16 trillion dollars to be known as the world’s biggest energy consumer. Due to propinquity to China, Persian Gulf reign will become the most important source of crude oil and gas for that country.

Existing Challenges: Available statistics and estimates presented by creditable international institutions show that despite many efforts made to reduce dependence of international economy on crude oil and its products, the increasing trend of crude oil and natural gas consumption will continue. Recent increase in price of crude oil, which was due to limitations in upstream and downstream sectors, is reminder of the undeniable reality that lack of adequate and timely investment in upstream and downstream sectors, will show its untoward effects after a while and at that time, measures taken to make up for the defect will not be effective because projections for meeting consumers’ demand should be made beforehand.

Therefore, some of the most important challenges facing global oil market over the next two decades are, firstly, to create enough new oil and gas production capacities to assure sustainable growth of global economy; and secondly, increased capacity should create reliable surplus production capacity for the world markets to lessen concerns about energy supply security as much as possible. If there is no reliable surplus production capacity, global energy markets will be vulnerable to unpredicted fluctuations. In view of all estimates and huge reserves in Persian Gulf littoral countries, a large part of capacity increase should take place in OPEC members around Persian Gulf to increase their share from market. Despite some concerns, if the said surplus production capacity is not realized, global economy and especially major energy consumers would incur heavy costs in the long run and signs of such a situation will surface during next few years, though early signs were seen in late summer and early fall of 2004 when global oil price sur-

Iran is fully aware of technological capabilities as well as managerial and financial facilities of international oil majors for development and exploitation of its energy resources and is providing suitable grounds for attracting their cooperation...
Having a good feedstock is an advantage, but it is not enough to form a partnership. There are a number of other conditions that have to be met. There must be a practical willingness.**

**Harald Groech, Executive Manager, FERROSTAAL**

Global demand for energy has prompted OPEC members in the Persian Gulf to embark on economic reforms to boost their financial, technical and executive capabilities, especially in the field of oil and gas industries. Reduced energy production capacity as a result of sanctions and in view of limited production capacity of OPEC, prevented unhealthy rivalry among member countries and was an important factor in protecting the interests of producers while being harmful to major energy consuming countries.

Final result of this situation will be elimination of sanction. Therefore, presence of international oil majors and signing contracts, which were once worth more than 30 billion dollars as well as defining many development plans for Iran’s oil and gas fields, especially various phases of South Pars gas field declared failure of US sanctions against Iran. Phase 2 and 3 of South Pars Project were made operational by TOTAL, Gasrom and Petronas companies, the issue of energy exports will become more important and this will help Persian Gulf energy exporters and countries to more be attuned to global economy.

Since not meeting the world’s energy demands during next decades will lead to crises in global economy, supplying needed technology, capital and financial resources for increasing oil and gas production in Persian Gulf region is not only a must for developing countries, but also for continued economic development of advanced countries. Therefore, Persian Gulf oil and gas industry enjoys sufficient motives for attracting foreign investment and globalization through enhanced transfer of new technologies as well as attraction of investment and managerial capabilities which is an important factor for bolstering technical and executive capacities of developing countries.

In view of complicated nature of global communications and more dependence of countries and global economic on one another, globalization has passed 50 dollars per barrel.

**Sanctions:** One of the most important solutions for overcoming future energy crises is to encourage investment in major energy production regions and getting international oil majors invest in those regions.

However, policies adopted by some major consumers in including the United States during recent years and using inhibitory methods to prevent investments, especially imposing economic sanctions against some major oil producing countries, have killed those opportunities. Though the United States is the world’s biggest consumer and importer of energy and is badly in need of sufficient and secure energy, it has imposed sanctions on some major energy suppliers during past few decades or has been influential in sanctioning those countries. Restrictions considered by the United States against some energy exporters is incompatible with the United States’ policy to diversify and increase global supply of crude oil, because the goal of United States in diversifying energy supply sources is reducing risk of any possible disruption of energy supply by any specific group or region.

On the other hand, in view of globalization and reduction of barriers to international trade, success rate of imposed sanction, especially when they are unilateral, will be low. On the whole, unilateral sanctions in a changing global economic system have lost their application and will be very costly for the country imposing such sanctions.

Iran sanctions led to serious confrontations between the United States and its European allies because those countries had important strategic and economic interests in Persian Gulf and Middle East region.

Since not meeting the world’s energy demands during next decades will lead to crises in global economy, supplying needed technology, capital and financial resources for increasing oil and gas production in Persian Gulf region is not only a must for developing countries, but also for continued economic development of advanced countries. Therefore, Persian Gulf oil and gas industry enjoys sufficient motives for attracting foreign investment and globalization through enhanced transfer of new technologies as well as attraction of investment and managerial capabilities which is an important factor for bolstering technical and executive capacities of developing countries.

In view of complicated nature of global communications and more dependence of countries and global economic on one another, globalization has
offered oil and gas producing and exporting countries of Persian Gulf with opportunities and threats. Those countries should take advantage of all opportunities without losing any time while thwarting intimidations through cooperation and even turn them into suitable opportunities.

**Oil and Gas Outlook of Iran:** Iran is fully aware of technological capabilities as well as managerial and financial facilities of international oil majors for development and exploitation of its energy resources and is providing suitable grounds for attracting their cooperation. Foreign Investment Encouragement and Protection Act, was approved by the Islamic Consultative Assembly (Majlis) on March 10, 2002 and part of it was passed by Expediency Council on April 24, 2002. To encourage foreign investment, the Islamic Republic of Iran has joined member to Energy Charter Treaty (ECT) as an observer and is mulling full membership in the treaty.

Development of consumption markets and increasing demand has provided producing countries with opportunities to take advantage of experiences of transnational companies in forming mergers as a result of globalization exigencies to facilitate trade regulations and pave the way for the establishment of big oil and gas companies in the region. Undoubtedly, this will facilitate use of economy of scale and, as a result, less expensive and more competitive production. Perhaps it is time to think about establishment of major oil, gas and electricity companies at a regional level in the Persian Gulf. Global demand for energy has prompted OPEC members in the Persian Gulf to embark on economic reforms to boost their financial, technical and executive capabilities, especially in the field of oil and gas industries. To do this, Iran has targeted economic reforms, especially privatization and increased economic competitiveness in addition to attraction of foreign investment within frame of the Fourth Economic Development Plan. A major task in this regard is to expand cooperation with international oil and gas companies with an eye on expanded future cooperation. Expansion of Iran’s relations with the European Union and Southeast Asian countries can pave the way for attraction of more foreign investment to domestic oil and gas industry.

Despite all obstacles created by the United States, Iran is trying through diligence of domestic specialists and cooperation of friendly countries in the region and the whole world to gain its rightful position in global energy markets and has delineated bright outlooks in this regard. Based on a 20-year outlook plan, which stretches up to 2025, Iran will be a developed country ranking first in the region in economic, scientific and technological terms having preserved its Islamic and revolutionary identity, inspiring other countries in the world of Islam while engaging in constructive and effective interaction in the field of international relations. To realize the said national outlook, a desirable picture of Iranian oil and gas industry would be as follows:

1. Number one producer of petrochemical substances and commodities in the region in terms of value;
2. The second oil producing member of the OPEC capable of supplying 7 percent of the global energy market’s demand;
3. The third producer of natural gas in the world accounting for 10 percent of global gas trade.

Therefore, by relying on revenues sources resulting from added value of this national bounty, Iranian oil and gas industries should rapidly increase their potential, strategic capabilities through pursuing the following policies in the oil sector within general frame of the Islamic system’s policies:

1. Streamlining oil, gas, refining, and petrochemical companies to the level of active international corporations capable of economic competition in the said sectors and whole accurate determination of their financial relationship with the government according to principles of trade and methods used by corporations;
2. Increasing added value of oil and gas industry through synergy of relative advantages through increasing investment in resources as well as oil, gas, refining, petrochemical, energy-intensive and engineering service industries;
3. Supporting establishment and bolstering activities of the private sector in oil industry to pave the way for presence of Iranian companies in regional and global markets;
4. Creating a center for attraction, production, transfer and promotion of new technologies to oil, gas, refining and petrochemical industries in Persian Gulf through constructive interaction with effective countries in the field of oil and gas technology and bolstering domestic scientific, technical and research institutes active in oil industry;
5. Encouraging and protecting foreign investment in developing oil, gas and petrochemical industries and production of oil products;
6. Taking advantage of joint investment with regional countries or merging related interests without losing any time while thwarting intimidations through cooperation and even turn them into suitable opportunities.
Undoubtedly, regional countries will be able to turn their potential capacities into active ones through correct planning and cooperation and play a role in global markets.

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with acceptable capabilities in technical-engineering services, repair and maintenance, establishment of petrochemical plants and project management. These companies have taken a fine market share through tight competition. PIC has established three new projects with about $50 million of investment in three years: Production plants of polyethylene pipes with the capacity of 11,000 tons, PVC films with the capacity of 300,000 tons and unleaded gasoline with the capacity of 50,000 tons. The latter was commissioned in late 1999 and is currently supplying the market.

A 50,000-ton project for the production of MTBE is being implemented in Bandar Imam with the investment of $14 million. Hopefully, this plant will be commissioned in 12 months. Currently, PIC is negotiating on joint investment for production of PET at an annual capacity of 40,000 tons. Moreover, the company is designing techno-economic studies of a few projects, as follows: Carbon Black with the annual capacity of 40,000 tons VAM with the annual capacity of 150,000 tons PVC with the annual capacity of 300,000 tons and Citric acid with the annual capacity of 5,000 tons. Upgrading the capacity of existing plants (Abadan, Farabi, Iran Carbon) and the establishment of new units

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We are at the threshold of the third millennium as an exceptional time, and in Iran as an exceptional place. This is a historic opportunity for all of us to take our roles better and create the right atmosphere for the companies that we direct. By enhancing cooperation and participation, we can try to improve the quality of our jobs and our lives. This cooperation can be materialized in various forms of joint investment. Let us note that the Iranian petrochemical industry won’t delay in its advance toward global cooperation. Therefore, the greater benefit goes to those who won’t delay in responding to the call of Iranian petrochemical industry for partnership

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Asia and Europe. We believe SABIC and Iranian producers can work together to mutual benefit and look forward to exploring ways to do so on various manufacturing and marketing approaches. Such cooperation efforts seem likely to become increasingly important in today’s more competitive petrochemical market environment.

There are many petrochemical producers active in today’s market while the import requirements of some developing Asian nations are shrinking. So maybe Iran can advantageously position itself as a supplier of petrochemicals to those countries. We are ready to cooperate with SABIC in marketing network in

In this area and in the future, we aim to be able to create a position for Iran in the petrochemical world. Iran has more than 13% of the world’s proven oil reserves and a full knowledge of the technical resources that drives development this century. This type of development is, of course, not going to happen overnight. I am confident that the country would ignore these developments at its peril. We need to accelerate our process of dematerialization (doing more with less) and create truly closed-loop systems - recycling materials. Increasing the ecological efficiency of our operations will reduce the impact on the environment while maximizing resource productivity.

At first glance, this type of future may not appear to be economically profitable for a petrochemical industry to invert its focus on delivering volume to deliver higher "added-value" products and services using fewer natural resources.

We will need to accelerate the pursuit of dematerialization (doing more with less) and create truly closed-loop systems - recycling materials. Increasing the ecological efficiency of our operations will

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beneficial and negative effects remain firmly in the positive. Looking towards the future, from a technologically point of view, sustainable development will require the petrochemical industry to invert its focus on delivering volume to deliver higher "added-value" products and services using fewer natural resources.

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Iran Eyes $70b Finance in Petrochem Industry in Vision Plan (2025)

Iran Plast started work officially in 2002 sponsored by NPC. It was held annually until 2006. After the sixth round, it was decided to hold the exhibition biennially in order to upgrade its quality and avoid its coincidence with other similar important international exhibitions.

Addressing the inauguration ceremony of Iran Plast 2014, Oil Minister Zangeneh said, “Iran has taken a big leap forward in the petrochemical industry and this trend should be maintained and continued. We hope that by resolving the country’s problems and through efforts of managers and industrialists in petrochemical industries, the value of petrochemical products and production capacity of the country will increase by 100 million cubic meters. Next year too, he said, another 100 million cubic meters of gas will be added to this capacity. Therefore, besides eliminating concerns on gas supply, no problems would be faced with respect to providing petrochemical feedstock.

The Oil Ministry is prepared to fix the price of petrochemical feedstock for the next 10 years, Zangeneh pledged. He added that the same amount of investment is needed to achieve this objective and once this goal is attained the downstream industries will also develop.

The oil minister said the supply of feedstock to petrochemical plants is being done properly in the current year and once the four phases of South Pars gas field expansion project are completed by the yearend (March 20, 2015), the gas production capacity of the country will increase by 100 million cubic meters. Next year too, he said, another 100 million cubic meters of gas will be added to this capacity. Therefore, besides eliminating concerns on gas supply, no problems would be faced with respect to providing petrochemical feedstock.

The Oil Ministry is prepared to fix the price of petrochemical feedstock for the next 10 years, Zangeneh pledged. He added that a meeting had been held with petrochemical producers and industrialists recently to negotiate a final pricing model for petrochemical feedstock, noting that a reasonable feedstock price will be determined in case of commitment of producers to the understanding reached in the talks.

He said his ministry was ready to fix a long-term feedstock pricing formula for the next 10 years so that domestic producers would not face problems such as fluctuation in international prices of petrochemical products.

Stressing that the neighboring countries do not have feedstock to sell to those investing in the field of petrochemical industry, Zangeneh said Iran enjoys the best status in the region in terms of both influence and feedstock price.

Fixing Long-Term Petrochemical Feedstock Prices: Minister of Industry, Mines and Trade Mohammad-Reza Nematzadeh said prices of petrochemical feedstock should be set on a long-term basis with the aim of attracting new investments. He said the long-term pricing of petrochemical feedstock should attract more investment.

Addressing the opening ceremony of Iran Plast 2014, the minister noted, “Long-term pricing of the feedstock for petrochemical plants will pave the way for new domestic and foreign investments in the ever-growing industry.”

He said investors would be able to decide better about their participation in projects and make investments if they have a long-term view of the prices. If investment in polymer section increases by 10 percent, he said, the country will witness a 15 to 20 percent growth in the production section.

Nematzadeh expressed hope that with the cooperation of the Oil Ministry in fixing long-term prices of feedstock, new financial resources would be injected into the petrochemical industry. He called on the downstream petrochemical units to avoid the sale of raw products and focus on exports to gain more value added. He noted that competition and high quality can help increase the power of Iran’s polymer industry at international level. To achieve this everybody should try to produce quality products, he stressed.

The minister expressed hope that with more than six million tons of polymer products being produced in the country, once new expansion projects go on line and the west ethylene pipe becomes operational, the production capacity of polymer will increase and go beyond seven million tons by the yearend (March 20, 2015).

Nematzadeh said gases – both associated and non-associated – should be used in the best way to supply feedstock of petrochemical plants, adding what is important is the extraction of gas to supply feedstock.

He noted that with rich oil and gas resources, Iran does not face any shortage in supply of energy resources and if the upstream sector increases production, the downstream sector will produce with higher value added.

Future of Petrochemical Industry Will Be Propane Oriented: Future development of petrochemical industry will be based on the increase in production of olefins, propene in particular.

Addressing the opening ceremony of Iran Plast 2014, deputy oil minister for petrochemical affairs, Abbas Sheri-Mogaddam, said according to the plans formulated for the future development of petrochemical industry, production of olefins especially propene from natural gas has been prioritized.

He said with respect to the penetration rate of propene in chemical industries, through construction of numerous downstream units, this best goods would be prepared for construction of numerous downstream units. In this way, this section can generate active and productive employment and act as one of the effective factors in economic development of the country.

Director of Iran’s National Petrochemical Company added that holding specialized exhibitions is considered one of the most important instruments in introducing the capabilities and potentials of owners of industries and establishing contacts between them and purchasers.
The plastic industry in Iran did not have the privilege of holding such exhibitions until 2002, he said. Before that time, however, some exhibitions were held sporadically under the title of plastic exhibitions on the sidelines of other domestic exhibitions. In 2001, at the initiative of the then managing director of NPC (Mr. Nematzadeh), the issue of holding international exhibitions in proportion with the status and growth of plastic industries was raised and it was put on the agenda. Iran Plast was the name chosen for this exhibition and now the 9th exhibition is being held, he said.

Sheri-Moqaddam added that petrochemical industries have so far consumed only five percent of the country’s hydrocarbons, including oil and gas, and have produced over 40 million tons of products, which have covered more than 40 percent of non-oil exports of the country. This is the highest value added, he noted.

“Currently, over 30,000 production units are affiliated to petrochemical industries, primary materials of which are supplied by petrochemical plants in Assalouyeh and Mahshahr,” he said. This shows that development and investment in upstream industries should continue ceaselessly to expand downstream petrochemical industries, he added.

The deputy minister noted that automotive, aerospace, medical, food, packaging, home appliances, tire and plastic industries are all dependent on petrochemical industries.
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