

New Paradigms in Oil and Gas Upstream Panel



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In 2000 he graduated with honors from the Ufa State Petroleum Technological University with a degree in Economics and Management of the Oil and Gas Industry Enterprises. In 2003 he received his MBA from Plekhanov Russian University of Economics. He has a PhD in economic sciences.

Professional

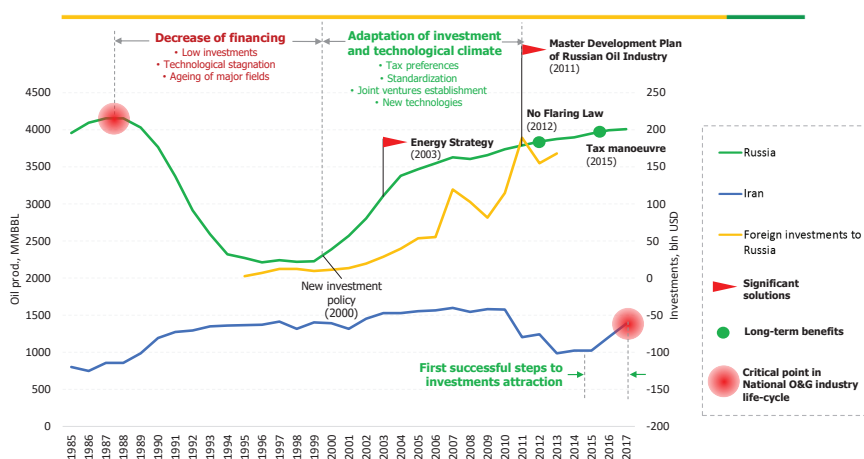
Experienced manager of Russian National Oil & Gas Companies with technical and economical background. Key expert fields: engineering and innovative projects management; conceptual engineering in upstream; fiscal systems of oil and gas industry; business development. Held key positions in Oil & Gas Companies: Deputy Director of the Corporate R&D Center of Rosneft, CEO of SamaraNIPIneft, CEO of Giprovostokneft. Currently works as a Deputy CEO for Business Development in Zarubezhneft. PhD in economic sciences. Author of more than 40 scientific publications. Member and officer of SPE.



Challenges in Iran's Oil and Gas Industry Time to Change

Azamat Ismagilov

During last years Iran has made very successful steps in attracting investors in the country's energy sector and now it is time to continue the process of improvement of the investment environment.



- Iranian O&G industry is in a challenging situation;
- Financial and technical challenges shall be solved by adaptation of investment and technological environment, which in the long-term will allow to get more benefits;
- Russian O&G industry has made the similar way, gaining experience based on cut and try method.

Slide 2. In 1987 Russia reached the peak crude oil production of approximately 4.2 billion barrels per year. After that, there was significant decline rate. In the period of about 10 years production reduced almost twice, featuring low investments and technological stagnation against ageing of major oil and gas fields.

By the year 2000, the crisis had been overcome and since that time, production increased as well as foreign investments.

The solution came by making investment environment more attractive: Tax preferences for investors; Standardization based on safety and efficiency; Establishment of Joint Ventures; Transferring of new technologies.

This all resulted in stable growth of production. Although some risks appeared from this strategy, like taxation and others. To address this issue, in 2003 State Energy Strategy was developed. The further industry development was accompanied with the series of global initiatives to address contemporary challenges.

For example, no flaring strategy was imposed in 2012 with obligation to reach 95% of gas utilization in 10 years period, and the oil field with associated gas production less than 5 million of m³ per year, and green oil fields for the first 3 years of production were excluded from the obligations.

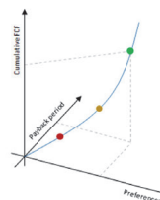
Iran is now facing the similar challenges in attracting investments and new technologies as Russia had at the beginning of 90s. It can be called crucial moment for National Oil and Gas Industry.

UPSIDES FOR MAKING INVESTMENT ENVIRONMENT MORE BENEFICIAL FINANCIAL SUPPORT

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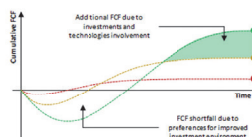
Long-term philosophy:

- Investment environment should be more beneficial for investors, who implement projects of strategic importance, involving new technologies and influencing the energy industry of the country.
- For effective and safe technological solutions appropriate regulatory policies shall be implemented in appropriate time as well as stimulating preferences.
- The preferences, which now might seem to be loss-making in short-term for the Iranian side, will pay off by bringing more investments, experience, knowledge and technologies.



Short-list of financial preferences examples:

1. Tax preferences: e.g. 3.75% income tax for any type of activities of the Investor's offices (not limited to coordination) and affiliated branches;
2. Reduced customs duties on equipment, coming to Iran for the purpose of energetic projects implementation;
3. Simplified import procedures on equipment, which can not be currently produced in Iran or related to new technologies



Slide 4. In order to make investment environment more beneficial, appropriate regulatory



policies shall be implemented as well as stimulating preferences.

Among financial preferences can be:

1. Privilege income tax for any type of activities of the Investor's offices (not limited to coordination) and affiliated branches;
2. Reduced customs duties on equipment, coming to Iran for the purpose of oil and gas projects implementation;
3. Simplified import procedures on equipment, which can't be currently produced in Iran or related to new technologies.

UPSIDES FOR MAKING INVESTMENT ENVIRONMENT MORE BENEFICIAL STANDARDIZATION SUPPORT

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Market limitation by International (USA, EU, ISO) standards:

- International standards are safe and sustainable, but they are not the only option;
- Some manufacturers are certified under other regulatory documents (Russian, for example), which in some cases can be even more strict and reliable;
- The requirement for international certification can shorten the list of vendors and lead to less effective solutions and bigger costs;
- Any standards shall be applicable subject to engineering studies:
 1. Standards analysis applicability for certain typical solutions;
 2. Each case analysis from the needed requirements point of view.

Examples of applicability of local standards:

1. Requirements of GOST for wall thickness of pipelines are more strict, than those of API, allowing safe exploitation even with steel of lower quality;
2. Russian GOST 55510-2013 for isolation valves is compliant with ISO 5210 and ISO 5211.

In such context products of a GOST-certified manufacturer are applicable even if they are not certified with international standards.

Examples of international standards



Examples of local standards



Slide 5. Another option is related to standardization. The well-known International standards (e.g. USA, EU, ISO) are safe and sustainable, but they are not followed all over the world. Some manufacturers are certified under other regulatory documents of their country of origin (Russian and China, for example). Some standards are more rigorous, which means they are safer and, in some cases, more reliable.

Some of requirements might limit the number of vendors and can lead to increase in CAPEX and OPEX, and also create delays for spare parts procurement.

For each critical requirement, the investor can present comparison of applicability of certain requirements of international standard with other regulatory document.

Generally, those standards can be applicable subject to engineering studies.

For example, one can compare the standard for casing in Russia's GOST with API. Requirements of GOST for wall thickness of pipelines are more rigorous, than those of API, allowing safe exploitation even with steel of lower quality.

Another example is that Russian GOST requirements for isolation valves is fully compliant with ISO. In such context, products of a GOST-certified manufacturer are applicable even if they are not certified with international standards.

UPSIDES FOR MAKING INVESTMENT ENVIRONMENT MORE BENEFICIAL REGULATORY SUPPORT

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Regulatory policies shall be adapted for safe and attractive investment environment:

- At the critical point in National Oil&Gas industry life cycle appropriate regulatory decisions shall be made in order to prepare for effective development and investments involvement;
- Some solutions, which seem to be lossmaking in a short-term, are necessary for long-term efficiency;
- Russian flexible strategy, chosen in the end of 90s after a long crisis, in about 15 years resulted in a possibility to fulfil advanced solutions, such as:
 - No flaring law;
 - Tax manoeuvre

without any loss of stable rate of industry development.

Examples of required regulatory decisions:

1. Refusal of packers usage in ESP wells;
2. Temporary refusal of no flaring requirement.



Slide 6. Another two issues are very alike Russia in 90-s. Taxation and No flaring policy.

At the critical point in National Oil & Gas industry life cycle certain regulatory decisions are



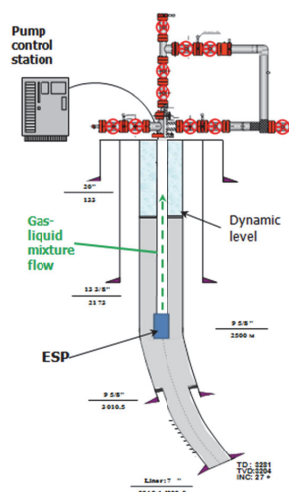
required for the sake of effective development of industry and attraction of the investments. There are some solutions, which seem to be lossmaking in a short-term, but will bring profit in a long-term period.

EXAMPLES OF REQUIRED REGULATORY DECISIONS PACKERS IN ESP WELLS

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- Current Iranian regulatory documents require packers and subsurface safety valves (SSSV) to be used in all wells;
- This completion is good and exclusively safe for naturally flowing wells, but inapplicable for ESP wells due to necessity to lift associated gas separately through the annulus and to do workovers regularly;
- Wells with pumps without packers can be secured by common ESP automatic shut-off device instead of SSSV and by other valves;
- In Russia there are >100 000 wells with ESPs, which are safely producing without packers.

Indicator	NO packers	Packers
Time between repairs	approx. 400 days	approx. 200 days
OPEX, mln USD	X	2X
Bottom-hole pressure	Low (≥ 70 bar)	High (\geq bubble point)
Production, mln bbl	X	$\ll X$
ESP working mode	Stable	Unstable
Safety	ESP safety shut-off	Subsurface safety valve shut-off
Best Practice	Onshore all over the world (incl. Egypt, Iraq, Oman, etc.)	Offshore



Slide 7. Packers in ESP wells. Current Iranian regulatory documents require packers and subsurface safety valves to be used in all wells. This completion is good and exclusively safe for naturally flowing wells, but mainly inapplicable for ESP wells due to necessity to lift associated gas separately through the annulus and to do workovers regularly. Using packers with ESPs will lead to unstable working mode of the pump due to free associated gas.

In Russia there are >100,000 wells with ESPs, which are safely producing without packers. For effective implementation of artificial lift in Iran some technical policies can be changed.

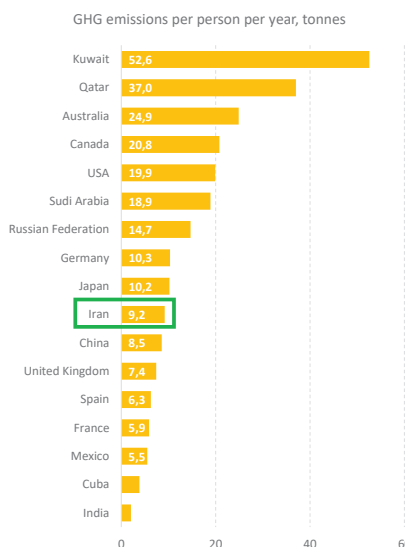
EXAMPLES OF REQUIRED REGULATORY DECISIONS OPTIMIZATION OF NO FLARING REQUIREMENT

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- Iranian regulatory policies require not to flare any associated gas;
- Still currently many fields sites are not equipped with any facilities for gas utilization and the gas is flared;
- Foreign investors face significant challenges due to the requirement not to flare gas;
- The solution to allow investor to develop long-term plan of reaching zero gas flaring in some singular projects can be beneficial by making them more attractive for investors;
- In Russia till 2012 associated gas could be flared with rather low fines and this made some projects more attractive for investors during that critical period. Now a gradual no-flaring program is being implemented without any loss of stable rate of industry development.



NGL-3100 project. Since 2011



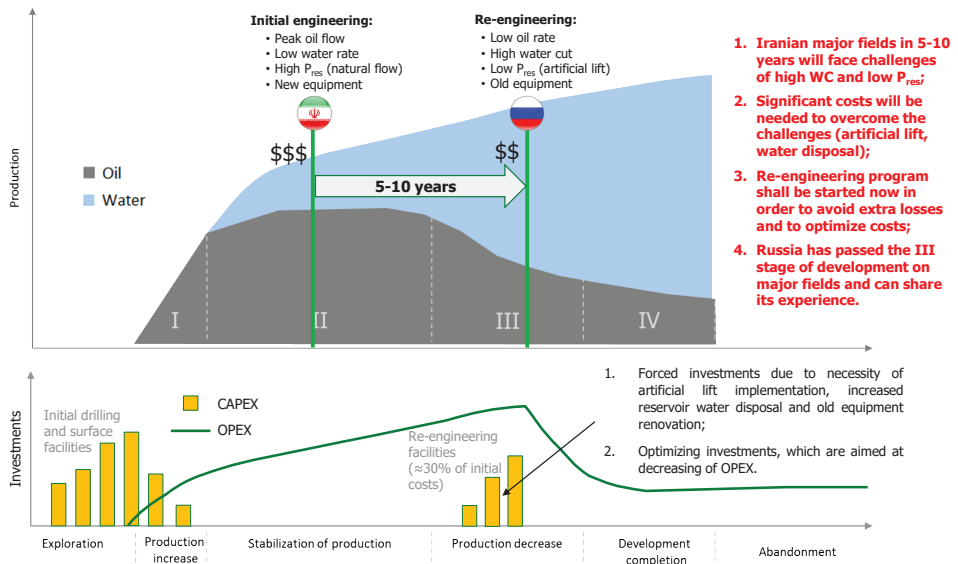
Slide 8. No flaring requirement. Iranian regulatory policies require not to flare any associated gas, produced from oil fields and to utilize it for local purposes (power generation, heating, pressure maintenance). Foreign investors face significant challenges due to the requirement not to flare gas, because the appropriate facilities are very costly and some equipment (e.g. high pressure compressors) can be produced in a limited list of countries and its procurement can also be challenging. The solution to allow investor to develop mid-or long-term plan of reaching zero gas flaring in some singular projects can be beneficial by making them more attractive for investors.

In Russia till 2012 associated gas could be flared with almost zero fines and this made some projects more attractive for investors during that critical period. Now a gradual no-flaring program is being implemented without any loss of stable rate of industry development.



NEXT STAGE OF THE OIL FIELDS LIFE CYCLE

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Slide 10. Second part of the paper is dedicated to upcoming challenges related to transition of fields development from natural flow production to the stage of artificial lift. Brownfields face absolutely new challenges compared to greenfields. As far as reservoir pressure is decreasing, water is rising and equipment is getting old, Iranian oil fields are approaching the III stage of development, which will require additional investments of two types:

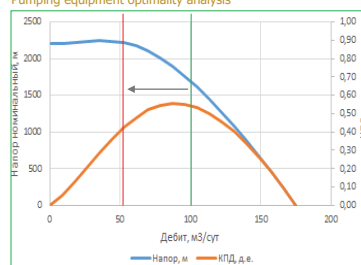
1. Forced investments due to necessity of artificial lift implementation, increased reservoir water disposal and old equipment renovation;
2. Optimizing investments, which are aimed at decreasing of OPEX.

RE-ENGINEERING

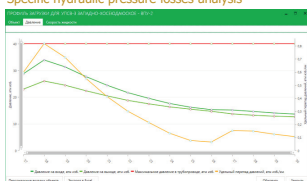
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- Designed for the peak oil flow, at III and IV stages Brownfields have great potential for optimization and need to be re-engineered;
- Typical optimization solutions include but not limited to:
 - Pumps efficiency analysis and adjustment;
 - Hydraulic losses analysis;
 - Pipelines routing optimization;
- Russia has rich re-engineering experience due to plenty of Brownfields with more than 40 years of history which are being developed by ESPs with more than 80% water cut;
- Major Iranian oilfields, which are currently naturally flowing, will face similar challenges in 5-10 years;
- General State O&G Industry concept can be developed for stable and balanced development of the industry.

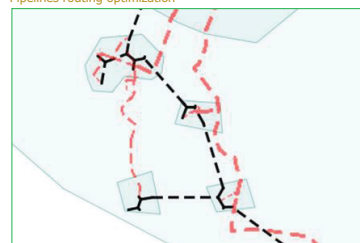
Pumping equipment optimality analysis



Specific hydraulic pressure losses analysis



Pipelines routing optimization



Slide 11. Designed for the peak oil flow, at III and IV stages brownfields have great potential for optimization and need to be re-engineered. Typical optimization solutions include but not limited to:

- Pumps efficiency analysis and adjustment;
- Hydraulic losses analysis;
- Pipelines routing optimization.

Russia has rich re-engineering experience due to plenty of brownfields with more than 40 years of history which are being developed by ESPs with more than 80% water cut. Major Iranian oilfields, which are currently naturally flowing, will face similar challenges in 5-10 years. Besides local solutions, General State O&G Industry concept can be developed for stable and balanced development of both upstream and downstream sectors.



CONCLUSION

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1. Attracting of foreign investments is challenging for Iran in current complex geopolitical circumstances;
2. Financial and technical challenges shall be solved by adaptation of investment and technological environment
3. Russia has been in similar situation and has made its way to stable growth;
4. For long-term efficiency, attractive investment environment shall be prepared by short-term solutions like:
 - Financial support for foreign investors;
 - Standardization support of manufacturers;
 - Regulatory support for Contractors.
5. It is right time to get prepared for next stages of major fields development featuring low P_{res} , high WC and artificial lifting (re-engineering);
6. Russia has rich experience in re-engineering and is ready to provide any support and assistance for effective development of Iranian O&G industry.

Slide 12. In conclusion it should be mentioned that attracting of foreign investments is challenging for Iran in current geopolitical situation. However this will be resolved shortly and until this moment some preparatory actions can be done to be more prepared for the future investment growth in Iran.