



## SOCAR - BP PARTNERSHIP: ACG GAS FLARING REDUCTION PROJECT

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### Abstract

Restoration of the environment is a key priority for the Government of Azerbaijan, together with all areas of social and economic life of the country. At present as well as in all other areas SOCAR and BP keep constantly the spotlight on environmental protection as a global issue and is cooperating with each other since 2008 in gas flaring reduction in frame of the World Bank's GGFR partnership. In 2011 with the purpose of gas flaring reduction In terms of this partnership Joint Working Group between SOCAR and BP was composed of and a number of actions in direction of flaring reduction have been implemented in ACG field by this Group. As an initial flaring value for baseline scenario of the project was taken an average value of 4% of associated gas flared in 2010-2011. In 2012 in the framework of the mentioned project, it was developed an improvement plan aimed to reduce flaring gas volume. As a result of the implementation of the plan, the volume of the flared gas was reduced from 4% (baseline scenario) to 2 %. In 2019 it was achieved 0.9%. This project resulted in gas flaring reduction, low-pressure gas gathering, and transportation through existing infrastructure, delivering gas to consumers, efficient use of the energy resources and improvement of consumers' access to energy.

### Keywords:

Project;  
Partnership;  
Environmental;  
Associated gas;  
Gas flaring reduction.

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### 1. Background information

Restoration of the environment is a key priority for the Government of Azerbaijan, together with all areas of social and economic life of the country.

«Azeri-Chirag-Guneshli» oilfield (ACG) is the largest field under development in the Azerbaijan sector of the Caspian basin. The development of this field was initiated through the Production Sharing Agreement (PSA) signed on September 20, 1994, and entered history as the «Contract of the Century».

Joint development of these three oil fields provides by the consortium of major international oil companies, operated by BP.

Next to ACG, there is the ancient offshore oilfield «Neft Dashlari», operated by SOCAR.

### 2. SOCAR-BP joint activities in associated gas flaring reduction

At present as well as in all other areas SOCAR and BP keep constantly the spotlight on environmental protection as a global issue and is cooperating with each other since 2008 in gas flaring reduction in

frame of the World Bank's GGFR partnership.

In 2011 with the purpose of gas flaring reduction In terms of this partnership Joint Working Group between SOCAR and BP was composed of and a number of actions in direction of flaring reduction have been implemented in ACG field by this Group.

To implement Gas Flaring Reduction Project in ACG field joint seminars, meetings have been organized, strong collaboration between SOCAR and BP was established.

Both SOCAR and BP support global challenges in gas flaring reduction.

### 3. Project Description

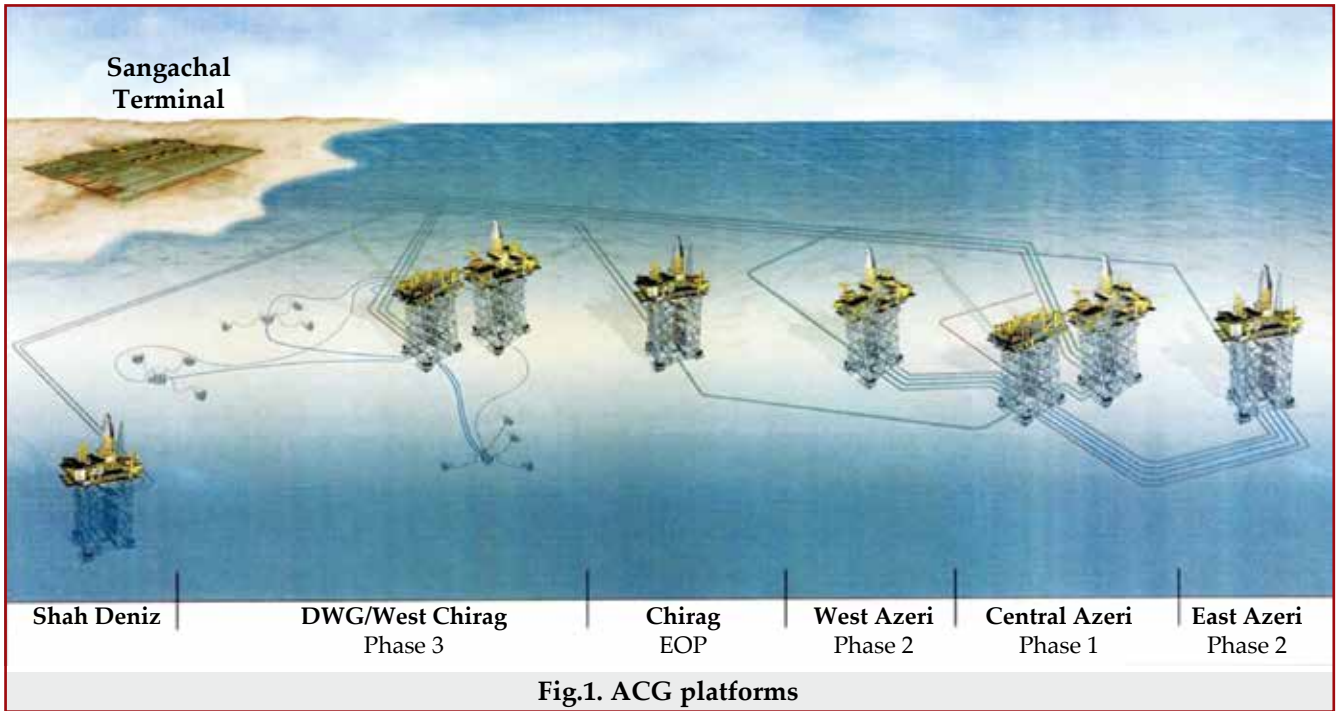
During the development of ACG oil field (fig.1), the most advanced environmental protection and safety technologies have been used.

The system of collection and transportation of low pressure associated gas from the Chirag-1 to «Neft Dashlari» already existed. However, operational practices, work plans and the low throughput of the system are not allowed to increase the volume of gas transportation.

In the framework of the project due to joint efforts and coordination activities between SOCAR

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and BP-Azerbaijan below mentioned results were achieved:

- the significant reduction of the volume of gas flared in ACG oil field,
- improvement of the associated gas transportation system, and 48 km long 16-inch gas pipeline,
- delivery gas to the shore, to end-users.

*Following works were performed in the framework of the project:*

**BP-Azerbaijan:** To improve the reliability of the delivery of associated gas from the Chirag-1 platform to the compressor station of the «Neft Dashlari»:

- the operational effectiveness was increased;
- this aimed achieving maximum level of associated gas reinjection;
- gas compressors and gas collection system on the platform Chirag-1 have been reconstructed;
- the soft barrier was installed at the Chirag-1 platform to comply with the safety regulations.

**SOCAR:**

- the «Neft Dashlari» booster compressor station (BCS-2) was upgraded to increase throughput of gas;
- additional compressor station consisting of 4 turbine-powered compressors with throughput capacity of 3.6 million m<sup>3</sup>/day each one were installed at «Neft Dashlari»;
- gas separation station and BCS-2 were connected by two new gas

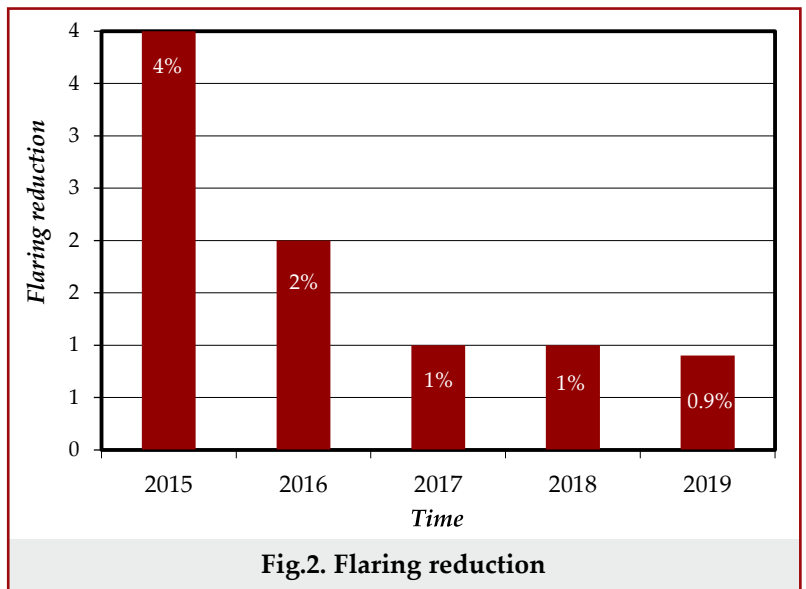
pipelines with outside diameter of 300 mm each one;

- necessary measures were taken to reduce gas pressure level at Chirag-1 from 7.5-7.6 atm. to 5.0-5.1 atm;
- to provide transfer of dry gas, the station was equipped with gas drying facilities; gas receiver and pig-receiver equipment were modernized.

As the result of the work done the total volume of the gas transported from Chirag-1 platform to the «Neft Dashlari» was increased from 1.5 – 1.6 million m<sup>3</sup>/day to 1.9 – 2.0 million m<sup>3</sup>/day. Due to above mentioned technical arrangements the safety delivery of associated gas to the shore and supply it to end users were achieved.

Both companies made significant investments in the implementation of the project.

#### 4. Results achieved from the reduction of



## the gas flaring

As an initial flaring value for baseline scenario of the project was taken an average value of 4% of associated gas flared in 2010-2011. In 2012 in the framework of the mentioned project, it was developed an improvement plan aimed to reduce flaring gas volume. As a result of the implementation of the plan, the volume of the flared gas was reduced from 4% (baseline scenario) to 2%. In 2019 it was achieved 0.9% (fig.2).

This considered as the best indicator in the area during the past 20 years.

As a result of this project, additionally 400 thousand m<sup>3</sup> gas/day are collected, on the other side, approximately 265 thousand tons of CO<sub>2</sub> ekv/year emissions affected climate change are prevented.

This project resulted in gas flaring reduction, low-pressure gas gathering, and transportation through existing infrastructure, delivering gas to consumers, efficient use of the energy resources and improvement of consumers' access to energy.

This project is important both in terms of economic benefits and to mitigate the effects of climate change.

## 5. Main barriers and challenges

The main features of the project are the management of the associated gas on offshore platform in complex conditions and limited area.

Associated gas flaring reduction, operational and technical safety, keeping of production at maximum level and effective management

(collection and transportation) of associated gas were considered together.

The coordinated action of the operators of the «Neft Dashlari» and ACG, operational practices, alignment of technical parameters and joint modernization measures were necessary for the achievement of the project goals.

## 6. Lessons learned and role of cooperation

The upgrading of existing infrastructure and efficient use of natural resources became a major positive result of the project, aimed to increase the effectiveness of associated gas management.

Implementation of this project is the biggest achievement of BP-SOCAR cooperation. The long history of this ongoing cooperation in line with Azerbaijan environmental policy covers such large areas as waste management, environmental protection and reduction of associated gas flaring.

The partnership platform created by GGFR plays the important role in addressing global challenges, encouraging of companies and promotion of environmental friendly projects.

## 7. Achievement

In 2015, during the 4th Global forum Gas Flaring Reduction initiated by the World Bank's GGFR Organization SOCAR and «BP Azerbaijan» received the «Excellence Award» by the GGFR Expert Council for implementation of Azeri-Chirag-Guneshli gas flaring reduction.



## **Сотрудничество SOCAR и BP: проект утилизации попутного нефтяного газа на месторождениях «Азери-Чыраг-Гюнешли (АЧГ)»**

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### **Реферат**

Охрана окружающей среды, наряду со всеми сферами социально-экономической жизни страны, является одним из ключевых приоритетных направлений Правительства Азербайджанской Республики. В настоящее время, как и во всех других областях, SOCAR и BP постоянно держат в центре внимания охрану окружающей среды как глобальную проблему и с 2008 года сотрудничают друг с другом в сфере сокращения сжигаемого на факелах газа в рамках партнерства со Всемирным Банком. В рамках данного партнерства в 2011 году была сформирована совместная рабочая группа между SOCAR и BP, которой был осуществлен ряд мероприятий в направлении сокращения сжигания газа на факелах на месторождениях АЧГ. В качестве начального значения для базового сценария проекта было принято в среднем 4% от сожженного на факелах в 2010-2011 годах попутного нефтяного газа. В 2012 году в рамках упомянутого проекта был разработан план обустройства, направленный на снижение объема сжигаемого на факелах газа. В результате реализации плана объем сжигаемого газа был снижен с 4% (базовый сценарий) до 2%, а в 2019 году был достигнут уровень в 0.9%. Результатом этого проекта стало сокращение сжигания газа на факелах, сбор и транспортировка газа низкого давления через существующую инфраструктуру, доставка газа потребителям, эффективное использование энергетических ресурсов и улучшение доступа потребителей к энергии.

**Ключевые слова:** проект; сотрудничество; окружающая среда; попутный нефтяной газ; сокращение сжигания газа.

## **SOCAR və BP əməkdaşlığı: «Azəri-Çıraq-Günəşli (AÇG)» yataqlarında səmt neft qazının utilizasiyası layihəsi**

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### **Xülasə**

Ölkənin sosial-iqtisadi həyatının bütün sahələri ilə yanaşı, ətraf mühitin qorunması da Azərbaycan Respublikası Hökumətinin əsas prioritet istiqamətlərindən biridir. Hal-hazırda, bütün digər sahələrdə olduğu kimi, SOCAR və BP də ətraf mühitin qorunmasını qlobal problem kimi daim diqqət mərkəzində saxlayır və 2008-ci ildən Ümumdünya Bankı ilə tərəfdaşlıq çərçivəsində məşəllərdə yandırılan qazın azaldılması sahəsində qarşılıqlı əməkdaşlıq edirlər. 2011-ci ildə bu tərəfdaşlıq çərçivəsində SOCAR və BP arasında birgə işçi qrup yaradılmışdır ki, bu qrup tərəfindən AÇG yataqlarında qazın məşəllərdə yandırılmasının azaldılması istiqamətində bir sıra tədbirlər həyata keçirilmişdir. Layihənin baza ssenarisi üçün ilkin qiymət kimi 2010-2011-ci illərdə məşəllərdə yandırılmış səmt neft qazının orta hesabla 4%-i qəbul edilmişdir. Qeyd olunan layihə çərçivəsində 2012-ci ildə məşəllərdə yandırılan qazın həcmənin azaldılmasına yönəldilmiş abadlaşdırma planı hazırlanmışdır. Planın həyata keçirilməsi nəticəsində yandırılan qazın həcmi 4%-dən (baza ssenarisi) 2%-ə qədər azaldılmış, 2019-cu ildə isə 0.9% səviyyəsi əldə edilmişdir. Bu layihənin nəticəsi qazın məşəllərdə yandırılmasının azaldılması, aşağı təzyiqli qazın mövcud infrastruktur vasitəsilə yığılması və nəql edilməsi, qazın istehlakçılara çatdırılması, enerji resurslarının səmərəli istifadəsi və istehlakçıların enerji əldə etməsinin yaxşılaşdırılması oldu.

**Açar sözlər:** layihə; əməkdaşlıq; ətraf mühit; səmt neft qazı; qazın yandırılmasının azaldılması.