

# KURDISTAN GAS PROJECT

A look back and a look ahead

---

Impact Assessment Report

# INTRODUCTION

In 2007, Dana Gas and Crescent Petroleum entered into agreement with the Kurdistan Regional Government (KRG), which provided title and exclusive rights to appraise, develop, produce, market, and sell petroleum, including natural gas domestically and for export, from the Khor Mor and Chemchemical fields in the Kurdistan Region of Iraq (KRI). In 2009, Pearl Petroleum was formed as a consortium with Dana Gas and Crescent Petroleum as shareholders, with OMV, MOL, and RWE joining the consortium subsequently with a ten per cent share each.

The agreement marked the start of the Kurdistan Gas Project's contribution as an enabler in the development of the KRI's gas extraction and production.

Within a record 15 months from the commencement of Project implementation, gas began flowing through newly built pipelines from Khor Mor to power plants in Chemchemical and Erbil. In the ensuing decade, the Project has delivered reliable, affordable energy at scale to the KRI, making a considerable impact on the region's economy, society, and environment.

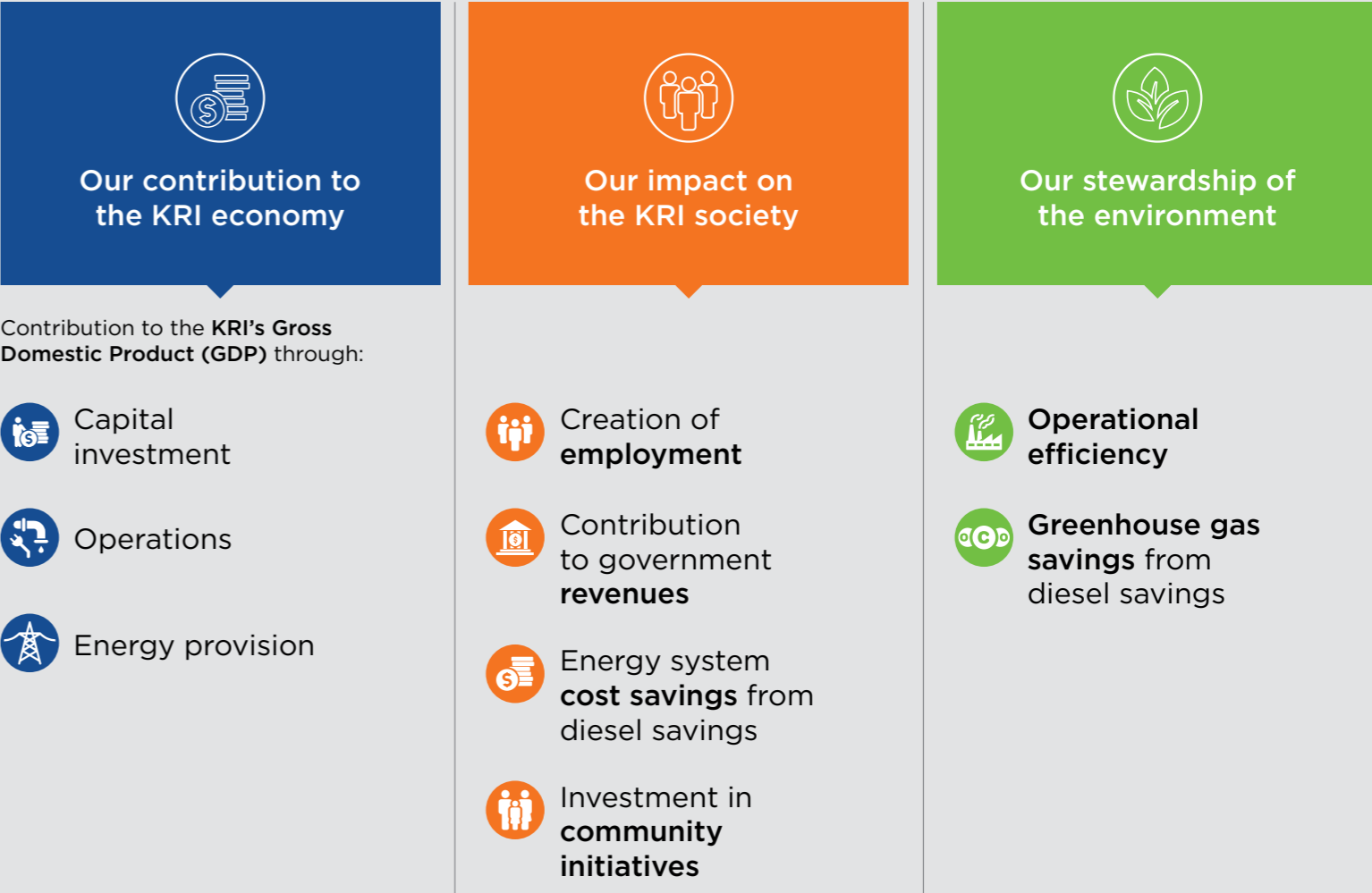
To commemorate the ten-year anniversary of production operations of the Kurdistan Gas Project, the Pearl Petroleum consortium asked PwC to lead an in-depth study to assess the wider socioeconomic benefits enabled by the Project. PwC studied the impact of the Kurdistan Gas Project in its first decade of operations and projected forward the future impacts based on the anticipated development of the Project over the next decade.

The following briefing outlines PwC's key findings and highlights the considerable returns the Project has and will continue to deliver to the KRI.

# THE THREE KEY AREAS OF CONTRIBUTION

PwC assessed the Project's contribution to the KRI in three key areas: economy, society, and the environment, locally and globally, taking both a historic and forward-looking view. The study reviewed the Project's contribution from 2008 to 2017 and estimated its future contribution to the region, given the extensive investment we are planning in the development of the fields.

How the Kurdistan Gas Project contributes to the KRI:



LOOKING BACK

## A DECADE OF PARTNERSHIP, SERVICE, AND PROGRESS

Capital investment in the gas project infrastructure and day-to-day operations sustain significant economic activity in the KRI. However, the Pearl Petroleum consortium's most significant economic contribution, by far, is through the energy provided to power the KRI's electricity grid. The electricity generated with gas not only fulfills the basic needs of the KRI's 5.9 million inhabitants, but it also powers activity in all sectors of the economy, including in agriculture, in industry, and in commerce.

By 2017, gas supplies accounted for about 80 per cent of the energy used for electricity generation in the KRI. PwC estimated that, in 2017, this contributed between US\$10.7 billion to US\$18.3 billion to the KRI's GDP by delivering reliable and affordable electricity to the region. This implies that economic growth over the past ten years would have been considerably lower without gas production from the Project. In the course of those operations, the Project produced 2,200 permanent jobs in 2017 and 20,000 temporary jobs during the construction phase, underscoring the direct economic impact it has had, particularly on local communities.

By supplying natural gas for generating the KRI's electricity, the use of the alternative, more carbon-emitting diesel is avoided. This means that less carbon dioxide emissions are released into the atmosphere as the greenhouse gas footprint of natural gas is considerably lower than what the footprint would be if diesel was used instead.

## FIRST TEN YEARS

Total investment

US\$1.3bn



Enabled GDP impact

GDP contribution

US\$10.7bn –  
US\$18.3bn



Employment impact

Temporary during construction phase

20,000 jobs

Permanent during operational phase

2,200 jobs (2017)



Savings generated due to fuel substitution

Fuel cost savings to the KRG

US\$19.2bn

Greenhouse gas emissions savings

29m tCO<sub>2</sub>e



Localisation

Local KRI national employment

Over 80%

Local procurement

US\$300m

Source: PwC analysis (2018).

LOOKING FORWARD

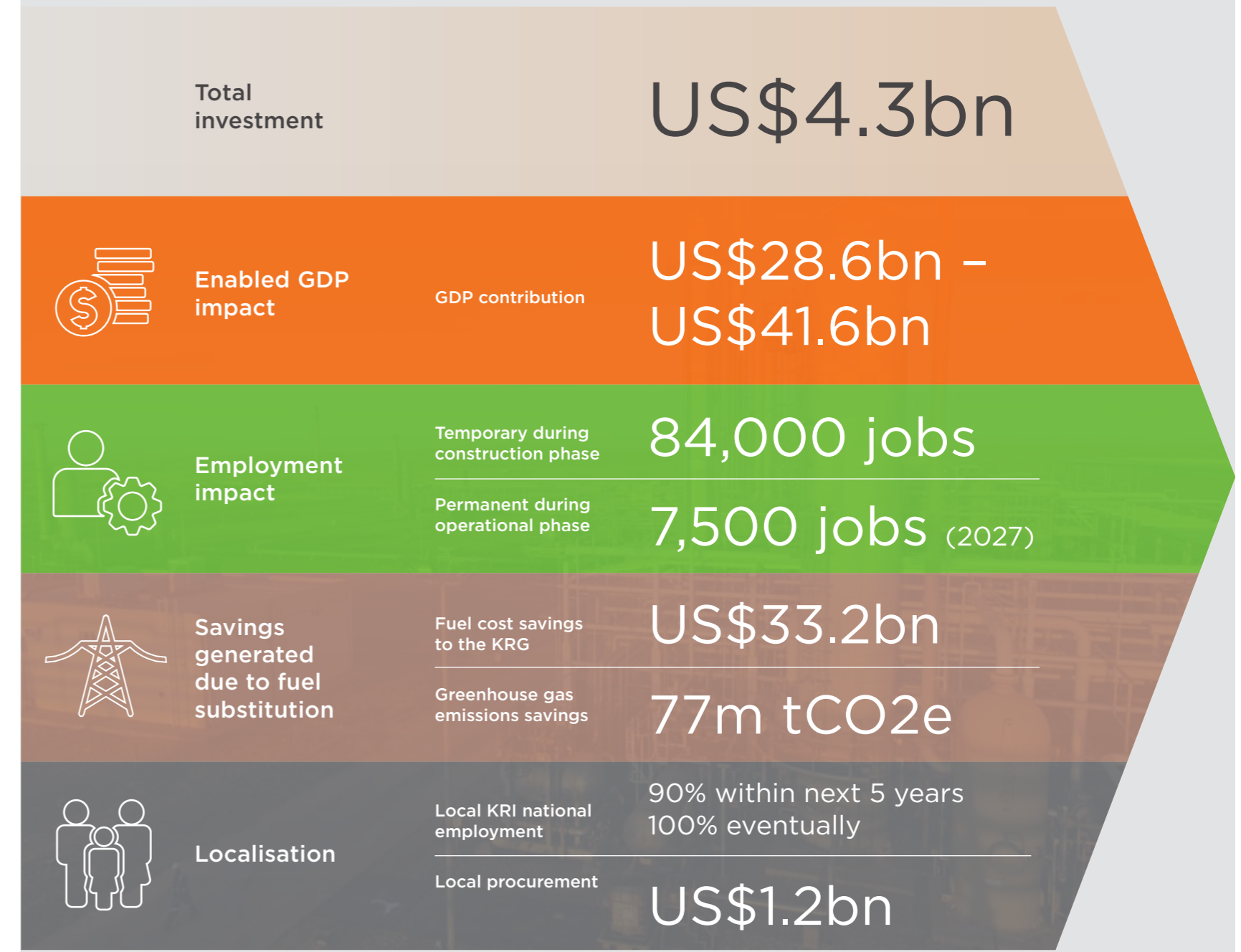
**A FUTURE OF CONTINUED INVESTMENT AND PROGRESS**

Looking to the next decade, PwC also assessed the Kurdistan Gas Project's socioeconomic impact based on planned US\$4.3 billion in additional expenditure on the Project. The scenario envisions more than tripling production from Khor Mor from the estimated current capacity 400 MMscfd to 1,400 MMscfd from Khor Mor, delivering an additional 750 MMscfd for domestic consumption in the KRI and 250 MMscfd of gas to supply the rest of Iraq. The expansion would also include production of 285 kbpd of crude oil from Khor Mor and additional condensates and liquefied petroleum gas (LPG).

PwC estimated the expanded operations would contribute between US\$28.6 billion and US\$41.6 billion to the KRI's economy by 2027 and result in the creation of 7,500 permanent jobs. Nearly 90 per cent of those jobs would be for local KRI nationals within five years and the proportion would progress to an aspired 100 per cent in the years thereafter.

The Project would also save an estimated US\$33.2 billion over the next ten years by replacing diesel with gas and that would result in greenhouse gas emission savings of 77 million tCO<sub>2</sub>e.

**NEXT TEN YEARS**



Source: PwC analysis (2018).



This document contains forward-looking statements, which may be identified by their use of words like "plans", "expects", "will", "anticipates", "believes", "intends", "projects", "estimates", or other words of similar meaning. All statements that address expectations or projections about the future, including, but not limited to, statements about the strategy for growth, product development, market position, expenditures, and financial results are forward-looking statements.

Forward-looking statements are based on certain assumptions and expectations of future events. Pearl Petroleum, its shareholders, and its affiliates (the "Companies") referred to in this document cannot guarantee that these assumptions and expectations are accurate or will be realised. None of the statements made in this document represent a commitment or endorsement of any kind by Pearl Petroleum or its shareholders, including any commitment to financial expenditure. The actual results, performance, or achievements of the Companies could thus differ materially from those projected in any such forward-looking statements. The Companies may not be held liable for any direct, indirect, consequential, or other losses or damages arising out of or in connection with the use of information, quotations, or forward-looking statements contained in this document. The Companies assume no responsibility to publicly amend, modify, or revise any forward-looking statements, on the basis of any subsequent developments, information, events, or otherwise.



The content and analysis in this document have been prepared by PricewaterhouseCoopers Abu Dhabi ("PwC") on behalf of Pearl Petroleum Company Limited ("Pearl") and solely for the purposes and on the terms agreed between Pearl and PwC dated 5 July 2018, under which PwC was engaged to provide services. PwC accepts no liability (including for negligence) to anyone else in connection with this document. The information contained within this document is based primarily on data provided by Pearl, supported by third-party research and other documentation as appropriate. This information has not been audited or validated by PwC. Pearl's management shall be fully and solely responsible for applying independent business judgement on any implementation decisions or courses of action with respect to the services and work provided by PwC. The reader of this document should not act upon the information contained herein without obtaining specific professional advice.

#### **Kurdistan Region of Iraq**

Floor 5, Gulan Park - Office Building  
Gulan Street, Erbil  
Kurdistan Region of Iraq  
T +964 66 256 6170  
epci-irbil@crescent.ae  
www.pearlpetroleum.com

