
ORIGINAL RESEARCH ARTICLE

Profit share dynamics in oil and gas industry: Assessing the effects of oil price, production volume, and cost recovery on government and contractor entitlement

Dody Susanto*, Asep Handaya Saputra, Andy Noorsaman Sommeng

Department of Chemical Engineering, Faculty of Engineering, Universitas Indonesia, Kampus Baru UI. Depok 16242. Indonesia

*Corresponding author: Dody Susanto, dsusanto@ui.ac.id

ARTICLE INFO

Received: 21 January 2026
Accepted: 25 February 2026
Available online: 13 March 2026

COPYRIGHT

Copyright © 2026 by author(s).
Applied Chemical Engineering is published
by Arts and Science Press Pte. Ltd. This work
is licensed under the Creative Commons
Attribution-NonCommercial 4.0 International
License (CC BY 4.0).
<https://creativecommons.org/licenses/by/4.0/>

ABSTRACT

This study focuses on how to optimize the crude oil lifting management within the framework of production-sharing contracts (PSC) on XYZ working area in Indonesia, emphasizing the critical role of cost recovery in ensuring financial sustainability and equitable profit distribution between the government and contractors. Crude oil lifting, defined as the extraction of oil from the reservoir and sales to buyer according to their respective entitlement, must be strategically managed to minimize the over-lifting or under-lifting gap, each of which could lead to significant financial consequences. Over-lifting, where the contractor extracts more than their fair share, reduces the oil available to the government, while under-lifting, where the contractor extracts less than their entitled share, delays cost recovery and affects the contractor's financial position. In this study, the lifting volume is 47,2 Million Bbls, with a cost recovery value of 221,5 thousand USD. The base profit sharing is 46.4% for the government and 53.6% for the contractor, with the FTP (First Tranche Petroleum) set at 20% and the Domestic Market Obligation (DMO) at 25%. The study evaluates the impact of oil price fluctuations (ranging from 20 USD to 100 USD per barrel) and changes in lifting volume (from 20,000 Bbls to 100,000 Bbls) on profit-sharing dynamics. Revenue generated at a price of 20 USD per barrel amounts to 943,5 Million USD, with an Estimated Taxable Base (ETBS) of 533,4 Million USD, and the government entitlement at 48.9%, while the contractor's entitlement is 51.1%. The findings suggest that fluctuations in oil prices and lifting volumes significantly influence profit-sharing arrangements, with the government's share increasing as oil prices rise. This study proposes strategies to optimize lifting volumes by projecting the Government entitlement to guide the government lifting volume, so getting the minimum over-lifting or under-lifting gap between contractor's and Government, ultimately enhancing decision-making, fostering better stakeholder collaboration, and ensuring the long-term financial health of oilfield projects under PSC agreements.

Keywords: contractor entitlement; cost recovery; crude oil lifting; government entitlement; production-sharing contract; profit sharing; over lifting

1. Introduction

The stages in the oil and gas industry include exploration, production, development, transportation, and marketing, categorized as upstream and downstream activities^[1]. The production sharing contract (PSC) system has been used in Indonesia and is legalized in Law Number 22 of 2001. Upstream PSC are managed through a collaboration between the government and contractors^[2]. The government is responsible for acting as a regional supplier, while the contractor is responsible for the exploration, development, and equipment supply stages. The PSC distribution ranged from 65% to 35% between the government and contractor^[3]. Later, profits were split between the government and contractor for oil production, with the government sharing 85% and the contractor sharing 15%, while for gas production, the government sharing 70% and the contractor sharing 30%^[4]. PSC cost recovery is defined as revenue collected from oil companies, including costs not covered in previous years, to cover capital and operating costs for a given year. This cost recovery is paid by the government to contractors to recoup costs incurred during oil exploration and development activities^[5].

The balance in the profit-sharing between the government and the contractor is influenced by over-lifting and under-lifting. Over-lifting occurs when the contractor lifts more oil than the share specified in the profit-sharing agreement. As a result, the contractor receives a larger portion of the production than what is stipulated in the contract. Consequently, the government will experience a shortage in the share of the production that should have been received^[6]. The government bears the burden of this shortfall, which was supposed to be allocated as per the agreement. In the case of under-lifting, the contractor receives a smaller share of the total production than what is due. The government, on the other hand, receives a larger portion. As a result, the contractor loses potential profits due to the production shortfall^[7]. Fluctuations in oil prices have a direct effect on the profit-sharing percentages between the government and the contractor. As oil prices increase, the total revenue generated from oil production rises, leading to a higher profit share for both the government and the contractor^[8]. On the other hand, when oil prices decrease, the overall revenue diminishes, causing a reduction in the profit share for both parties. This illustrates the sensitivity of the profit-sharing structure to changes in market conditions and underscores the need for adaptive management strategies in response to price volatility. In addition to fluctuations in oil prices, the lifting volume also impacts the profit-sharing contract^[9]. Lifting volume refers to the amount of oil produced for further processing or sale. The lifting volume affects the total revenue that is shared between the government and the contractor. When the lifting volume is higher, more production is achieved, leading to increased revenue from oil sales. In profit-sharing contracts, the percentage of revenue from lifting is agreed upon based on factors such as oil price, cost recovery, and first tranche petroleum (FTP)^[10]. When the lifting volume increases, the total revenue generated from oil sales will be higher. Consequently, the profit share for both the government and the contractor will also increase, although the percentage allocation for each party may remain the same, depending on the contract terms. Conversely, if the lifting volume decreases, the revenue generated will also be reduced, which means that both the government and contractor's shares will decrease as well, in accordance with the predetermined proportions in the agreement^[11].

The preliminary research mentions that over-lifting and under-lifting have not been explained in detail regarding how these situations are managed, fluctuations in both oil prices and lifting volume jointly affect the stability of the profit-sharing model, and what compensatory mechanisms are in place. Based on the background, the objective of this study is to analyze the impact of oil price fluctuations and lifting volume on profit-sharing contracts.

2. Methods

2.1. Profit Sharing Calculation

The profit sharing calculation for the cost recovery production sharing contract is as follows:

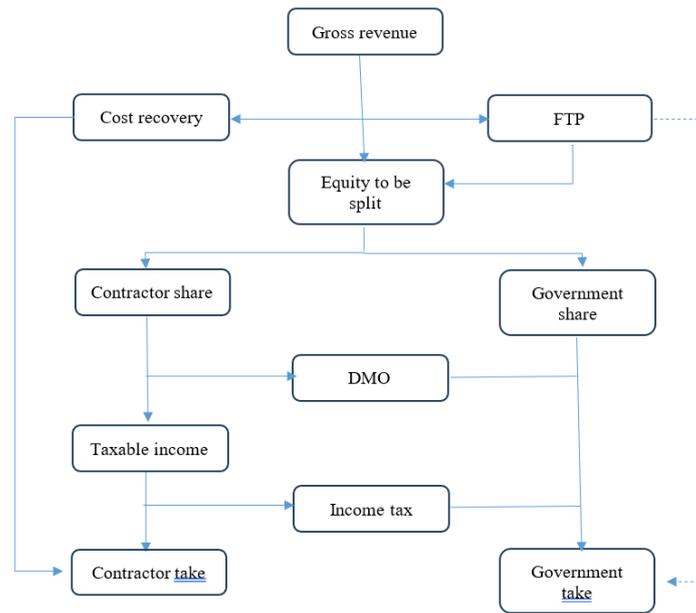


Figure 1. PSC cost recovery scheme.

As shown in **Figure 1**, the cost-recovery PSC scheme includes a First Tranche Petroleum (FTP), defined as the first withdrawal after oil production, as a guarantee of revenue for the state and contractor. The Domestic Obligation (DMO) calculation represents the contractor's obligation to meet domestic oil needs by a certain amount before taxes^[12].

Gross revenue (R): Represents the total revenue generated from the sale of crude oil, calculated by multiplying the oil price by the production volume over a specific period^[13].

$$R=Q \times ICP \quad (1)$$

Where:

R = Gross revenue (USD)

Q = Production rate (bbl/day)

ICP = Indonesia Crude Price (USD/bbl)

First Tranche Petroleum (FTP): A portion of the oil production taken first as the government's share before deducting cost recovery. The FTP percentage for conventional PSC contracts is set at 20% of the gross revenue^[14].

$$FTP=R \times \%FTP \quad (2)$$

Cost Recovery (CR): Refers to the reimbursement of costs incurred by the contractor for developing the field, provided through a specific mechanism. In the case of PSC contracts in Indonesia, the cost recovery is deducted from the gross revenue before the remaining revenue is shared between the contractor and the government^[15].

Equity to be Split (ETBS): Represents the portion of the production that will be shared between the government and the contractor, i.e., the gross revenue minus FTP and cost recovery. ETBS can also be defined as the division of the production revenue from the working area between the government and the contractor^[16].

$$ETBS = R - FTP - CR \quad (3)$$

Contractor Share (CS): Represents the contractor's share of the gross revenue after deducting costs^[17].

$$CS = ETBS \times \%CS \quad (4)$$

Where:

CS = Contractor Share (USD)

%CS = Percentage of Contractor Share (%)

Domestic Market Obligation (DMO): Refers to the contractor's obligation to deliver a portion of the produced oil to the government. This oil is used to meet domestic fuel needs. In return, the contractor receives reimbursement for the DMO portion from the government. The amount to be delivered is evenly distributed across all contractors operating in Indonesia and is capped at 25% of the produced oil in the given year. The DMO portion is deducted from the contractor's share^[18].

$$DMO = CS, \text{ Jika, } 25\% \times R \times \text{share} < CS \quad (5)$$

$$DMO = 25\% \times R \times \text{share}, \text{ Jika, } 25\% \times R \times \text{share} > CS \quad (6)$$

Government Share (GS): Represents the total share of revenue received by the government from the oil and gas field development^[19].

$$GS = ETBS \times \%GS \quad (7)$$

2.2. Data Collection and Processing

Calculating the profit share between Government and Contractor using the initial data which is collected from the XYZ working area, shows the parameters that influence entitlement in cost recovery profit-sharing contracts are as follows^[20]:

- a. Crude Oil Price: The crude oil price for upstream oil and gas operations in Indonesia, used for profit-sharing calculations, is determined in accordance with the Ministry of Energy and Mineral Resources Regulation No. 29 of 2021 regarding the procedures for setting the methodology, formula, and price of Indonesian crude oil. The crude oil price is regularly published every month on the Directorate General of Oil and Gas website. The sale price set by the contractor may be above or below the government-established price.
- b. Production Volume: The production volume refers to the net volume of crude oil successfully lifted, which can then be invoiced and accounted for as revenue.
- c. Cost Recovery: The cost recovery value represents the financing for a working area within one (1) year, reimbursed by the government to the contractor.
- d. Entitlement Calculation: The entitlement calculation was conducted for work area XYZ over a period of 1 year to obtain a profile of the impact of changes in petroleum prices, production volume, and cost recovery on state entitlements and Contractor's.

The data range that collected from the XYZ working area are plotted into the graph, so the government and the contractor entitlement can be predict in between the minimum and maximum condition. Crude oil lifting can be arranged accordint to the prediction entitlement on the graph, so it can be minimized the over-lifting or under-lifting gap between Government and Contractor.

3. Result and discussion

3.1. Parameters

Table 1 presents the parameters that influence entitlement of crude oil. The lifting volume recorded is 47,2 million bbls, indicating the total amount of oil produced and lifted. With cost recovery reaching 221,5 million USD, this represents the total costs that must be recovered before profit sharing takes place. In terms

of profit sharing, the government's base profit share is recorded at 46.4%, while the contractor's base profit share is 53.6%, indicating a balance that generally favors the contractor. The FTP (First Tranche Petroleum) formula is set at 20%, usually representing a certain proportion related to the costs or profits allocated to the producer. Additionally, the Domestic Market Obligation (DMO) is set at 25%, indicating an obligation to supply a quarter of the total production to the domestic market. The oil price range is between 20 to 100 USD per barrel, providing a broad and flexible range for oil price fluctuations. Revenue generated at 20 USD per barrel amounts to 943,5 million USD, while the Estimated Taxable Base (ETBS) is 533,4 million USD, representing the base subject to taxation after related costs. Finally, the government entitlement for this entity is approximately 48.9%, while the contractor's entitlement is slightly higher at 51.1%, indicating an almost equal distribution between the two parties regarding the rights to the generated revenue.

Table 1. Parameters and Values on Working Area XYZ.

Number	Parameters	Values
1	Lifting Volume (Million Bbls)	47,2
2	Cost Recovery (Million USD)	221,5
3	Base Profit Sharing (Government %)	46.4
4	Base Profit Sharing (Contractor %)	53.6
5	Base FTP (%)	20
6	DMO (%)	25
7	Oil Price Range (USD/barrel)	20-100
8	Revenue (Million USD) at 20/Bbl	943,5
9	ETBS (Million USD)	533,4
10	Government Entitlement (%)	48.9
11	Contractor Entitlement (%)	51.1

3.2. The Impact of Oil Price Fluctuations to Profit Share

Using the oil price variable from USD 20 to USD 100 per barrel, while assuming other parameters remain constant, the profit-sharing profile of the government's share relative to the contractor's share increases, as shown in the graph below:

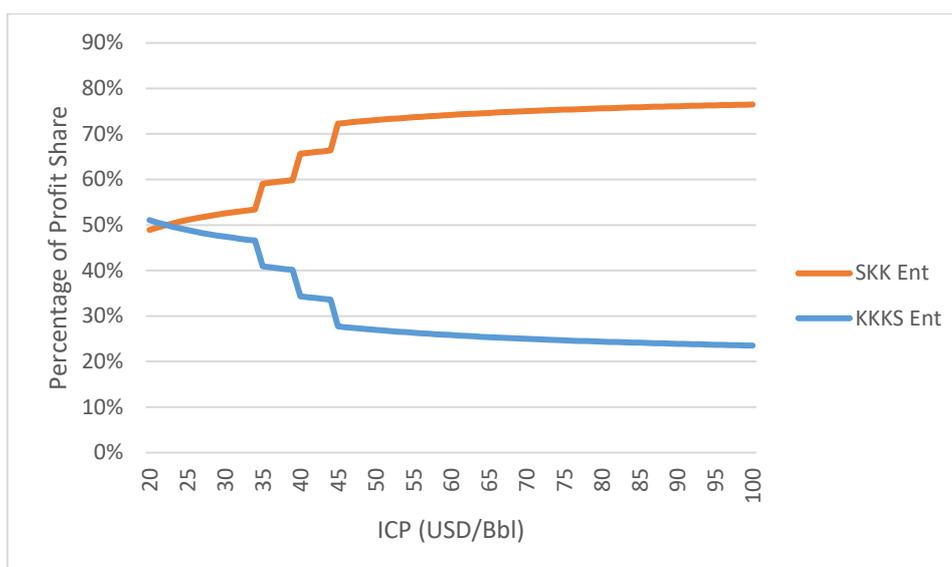


Figure 2. Oil price fluctuations to profit share.

Based on **Figure 2**, the government experiences an increase in profits share as the ICP rises. The percentage of profit steadily increases and approaches 80% when the ICP reaches USD 90-100. A decrease in profits is experienced by the contractor, reaching 25% at USD 70, which results in reduced incentives for the contractor to develop new exploration projects. At ICP USD 20 and USD 34, the government and contractors had nearly equal shares at the lower ICP levels. The government received approximately 46.4%, while the contractor received 53.6%, this indicates a nearly equal profit sharing at lower oil prices. At ICP USD 35, the profit sharing began to shift. The government received 59.1%, while the contractor received 40.9%. The government's profitsharing percentage increased slightly, while the contractor received a smaller share. As the ICP increased to USD 40, the profit sharing tilted increasingly in favor of the government. The government received 65.7%, while the contractor received only 34.3%. This indicates that the government began to capture the majority of the profits at higher oil prices. At ICP USD 45 to USD 100, the profit sharing remained constant. The government continues to receive 72.3%, while contractors receive only 27.7%. Despite further increases in oil prices, the government's profit-sharing proportion remains higher, while contractors receive a much smaller share. The fluctuations in oil prices are directly influenced on the distribution of profits. When oil prices increase, a larger portion tends to be received by the government, while a smaller share is obtained by the contractor^[21]. Conversely, when oil prices decrease, a larger proportion of the profits is received by the contractor. This reflects the existence of an adjustment mechanism in profit sharing, which is designed to maintain a balance between incentives for contractors to continue operations and the interests of the government as the owner of the natural resources^[22].

3.3. The Impact of Lifting Volume on the Profit Share

By using the lifting volume variable ranging from 20 to 100 million barrel, and assuming other parameters remain constant and at ICP 50 USD/bbl, the profit share profile between the government and the contractor will be influenced. This could result in a fluctuating share percentage as the volume lifted increases. The relationship between the volume lifted and the profit share is important to understand how the change in production levels affects the division of revenue between the State and the Contractor.

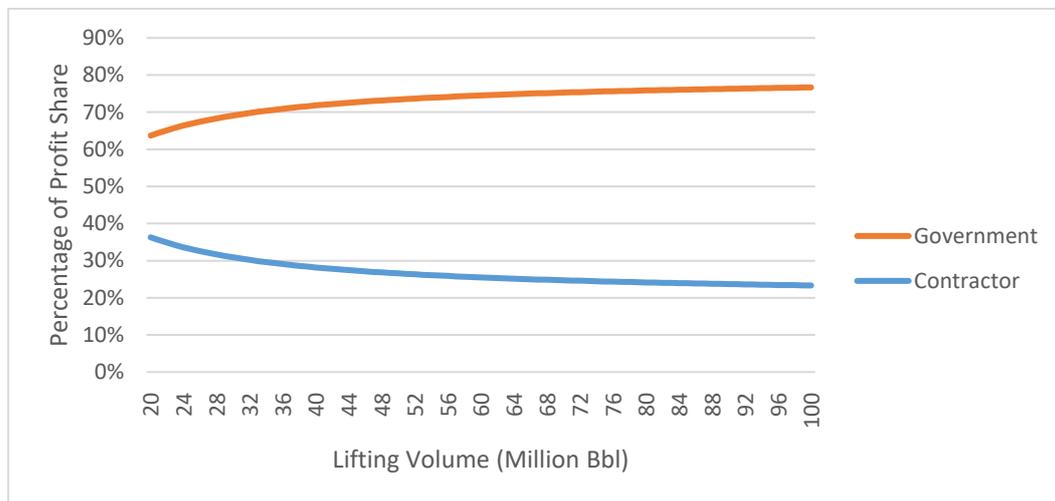


Figure 3. Lifting volume vs profit share.

Figure 3 illustrates that as the lifting volume increases, the percentage of profit share received by the government rises steadily. When the lifting volume is at 20 million barrels, the government receives 63.7% of the total profit, and at 100 million barrels, this percentage increases to 76.7%. The percentage of profit share received by the contractor shows that, at 20 million barrels, the contractor receives 36.3%, while at 100 million barrels, the share decreases to 23.3%. For lifting volumes of 75 million barrels and above, the contractor's profit share stabilizes between 23% and 24%, while the government's share reaches its peak at 75.6%. This finding is consistent with Cook (2021), who states that profit distribution increasingly favors the government

as lifting volumes grow^[23]. As production increases, the government's share of profits becomes larger, while the contractor's share diminishes. This structure aims to ensure that the government, as the owner of natural resources, receives greater benefits when production rises, while contractors receive smaller incentives^[24].

3.4. The Impact of Cost Recovery to Profit Share

By using the cost recovery variable ranging from 150 million USD to 230 million USD, and assuming other parameters remain constant and at ICP 50 USD/bbl, the profile of the State's percentage share relative to the Contractor's share decreases, as shown in the graph below.

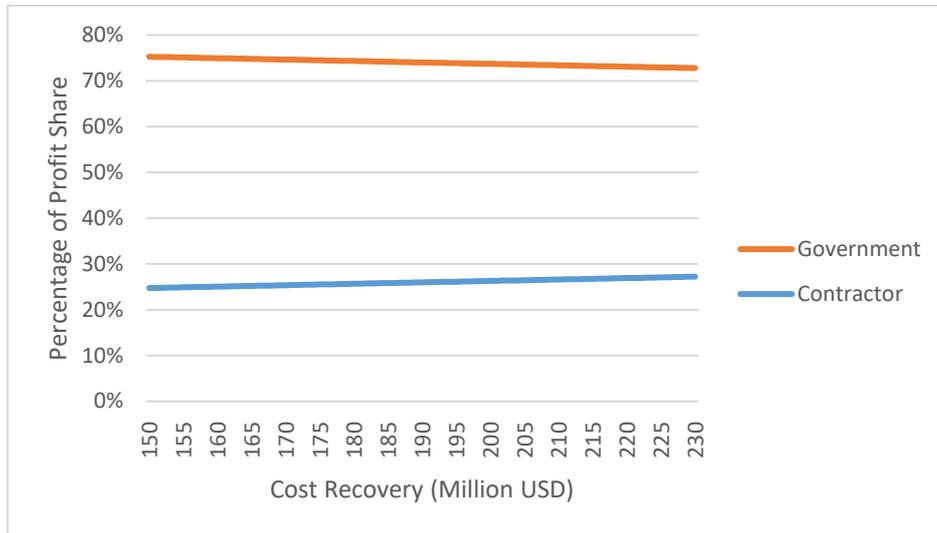


Figure 4. Cost recovery vs profit share.

Figure 4 illustrates that the cost recovery executed by the contractor for the project increases gradually within the range of USD 150 million to USD 230 million. The percentage of profit share received by the government is 75.3% at USD 150 million and decreases to 72.8% at USD 230 million. The share received by the government decreases due to fluctuations in cost recovery, although it remains above 70%. The percentage of profit share received by the contractor is 24.8% at USD 150 million and increases to 27.2% at USD 230 million. This is in accordance with the research by Kwarto et al, which suggests that contractors receive a larger portion of the total profit as cost recovery rises^[25]. The increase in cost recovery results in the government receiving a smaller share of the profit while the contractor's share becomes larger. This occurs because as higher costs are recovered, the contractor receives more incentives, demonstrating a balance in the operational mechanism between the government and the contractor^[26].

3.5. Government Entitlement Projection

The Government Entitlement projection regarding the volatilities of ICP, lifting volume and Cost recovery is analyzed as follows.

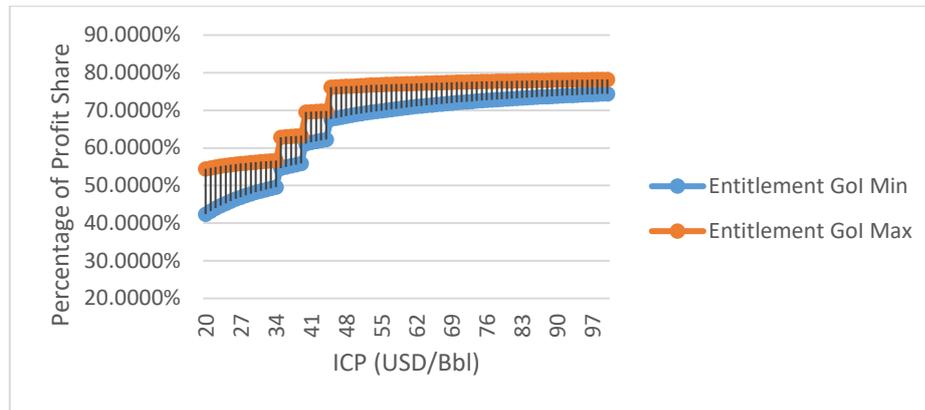


Figure 5. Entitlement vs oil ICP.

Figure 5 illustrates that percentage of Government profit share projection at ICP range 20 USD/Bbl to 100 USD/bbl and production at 20 million Barrel, cost recovery at 150 million USD and others parameters as constant values are set as the minimum profit share, and production at 100 million Barrel, cost recovery at 230 million USD and others parameters as constant values are set as the maximum profit share. It gives us the figure that the government receives minimum profit share at 42.4% at ICP of 20 USD/bbl, and increases to 74.4% at ICP of 100 USD/bbl, and the government receives maximum profit share at 46.4% at ICP of 20 USD/bbl and increases to 73.2% at an ICP of 100 USD/bbl. The decline in entitlement indicates that the contractor's share of the profit becomes smaller as oil prices rise. This is due to the contractual arrangement that allocates a greater share of the profits to the government when oil prices are high. This is consistent with the study by Hajiyev et al. (2024), which states that the increase in government entitlement and the decrease in contractor entitlement are aimed at ensuring fiscal stability by reducing dependence on global market fluctuations and optimizing national revenue^[27]. By using the same method, it can be plotted the contractor's entitlement.

Lifting plan should be arranged according to the profit share projection on **Figure 5** above, so the over-lifting or under-lifting gap between Government and Contractor can be minimized.

4. Conclusion

The analysis of profit-sharing and entitlement in the oil and gas industry provides valuable insights into how critical factors, including oil prices, lifting volumes, and cost recovery, influence the distribution of profits between the government and contractors. As oil prices rise, the government's share of profits increases, while the contractor's share decreases. This adjustment mechanism is designed to ensure that the government benefits more from higher oil prices, optimizing national revenue and fostering fiscal stability. Conversely, when oil prices decline, contractors receive a larger portion of the profits, preserving their incentives to maintain operations. Furthermore, lifting volume significantly affects profit sharing, with the government's share increasing as production volumes rise, reflecting its role as the owner of natural resources. Contractors, however, experience a reduced share as production levels increase, highlighting the need for a balanced approach to incentivizing contractors while safeguarding the government's interests. The cost recovery process also plays a pivotal role, with contractors receiving a larger share as they recover more costs, although the government's share remains substantial, typically above 70%. This ensures that both parties maintain an equilibrium where contractors are incentivized through cost recovery, while the government continues to secure a significant portion of the total profits. In summary, the structure of profit sharing in the oil and gas sector is meticulously crafted to align with fluctuating oil prices, changing production volumes, and the cost recovery process, ensuring that both the government and contractors are adequately incentivized. This balanced approach not only maintains operational stability but also maximizes national revenue, ensuring mutual benefit for both parties.

Author contributions

Conceptualization and Supervision: Dody Susanto, Asep Handaya Saputra, Andy Noorsaman Sommeng; Data Curation: Dody Susanto; Manuscript Preparation and Writing: Dody Susanto; Review and Editing: Asep Handaya Saputra, Andy Noorsaman Sommeng

Conflict of interest

The authors declare no conflict of interest.

References

1. Yulia, P. S., Sidqi, A. N., Irham, S., Maulani, M., & Wijayanti, P. Comparative Study of Economic Evaluation of PSC Cost Recovery and PSC Gross Split Scheme for Expiry Block, Case Study Field A in Sumatera. *Journal of Earth Energy Engineering* 2023; 12(2), 85-95. <https://doi.org/10.25299/jeee.2023.12530>
2. Hakim, A. L., & Sunitiyoso, Y. Decision Analysis on Selecting the Best PSC Scheme between Cost Recovery vs. Gross Split for Block Extension, Case Study: Panca Block. *European Journal of Business and Management Research* 2024; 9(6), 15-26. <http://dx.doi.org/10.24018/ejbmr.2024.9.6.2493>
3. Giranza, M. J., & Bergmann, A. Indonesia's new gross split PSC: Is it more superior than the previous standard PSC. *Journal of Economics, Business and Management* 2018; 6(2), 51-55. <http://doi.org/10.18178/joebm.2018.6.2.549>
4. Lingard, N., Morgan, P., Apostolova, K., & Tan, J. Cost recovery in production sharing contracts: a comparative review of Southeast Asian jurisdictions. *The Journal of World Energy Law & Business* 2020; 13(5-6), 441-456. <https://doi.org/10.1093/jwelb/jwaa033>
5. Shebubakar, A. N. International Agreement or Private Agreement? Uplift Policy in Oil and Gas Taxation in Production Sharing Contracts between Foreign Contractors and the Indonesian Government. In *ASEAN International Law* 2021; 545-560. https://doi.org/10.1007/978-981-16-3195-5_30
6. Manumayoso, B., Utami, A. D. R. K., & Gabunia, L. Oil and Gas Fiscal Term Regulations Based on Ecological Justice. *Journal of Sustainable Development and Regulatory Issues* 2024; 2(3), 233-263. <https://doi.org/10.53955/jsderi.v2i3.50>
7. Feng, S., Ma, K., & Cheng, G. Risk evolution along the oil and gas industry chain: Insights from text mining analysis. *Finance Research Letters* 2025; 75, 106813. <https://doi.org/10.1016/j.frl.2025.106813>
8. Caldara, D., Cavallo, M., & Iacoviello, M. Oil price elasticities and oil price fluctuations. *Journal of Monetary Economics* 2019; 103, 1-20. <https://doi.org/10.1016/j.jmoneco.2018.08.004>
9. Gong, X. L., Liu, J. M., Xiong, X., & Zhang, W. The dynamic effects of international oil price shocks on economic fluctuation. *Resources Policy* 2021; 74, 102304. <https://doi.org/10.1016/j.resourpol.2021.102304>
10. Mohamed, I. S., Khattab, H. M., El-Sayed, S. K., El-Noby, M. G. E. K., & El-Rammah, S. G. M. A new progressive and efficient production sharing Contract for upstream oil and gas industry. *Geoenergy Science and Engineering* 2024; 235, 212733. <https://doi.org/10.1016/j.geoen.2024.212733>
11. Rui, Z., Peng, F., Ling, K., Chang, H., Chen, G., & Zhou, X. Investigation into the performance of oil and gas projects. *Journal of natural gas science and engineering* 2017; 38, 12-20. <https://doi.org/10.1016/j.jngse.2016.11.049>
12. Toutounchian, S., Abbaspour, M., Dana, T., & Abedi, Z. Design of a safety cost estimation parametric model in oil and gas engineering, procurement and construction contracts. *Safety science* 2018; 106, 35-46. <https://doi.org/10.1016/j.ssci.2017.12.015>
13. Antonakakis, N., Cunado, J., Filis, G., Gabauer, D., & De Gracia, F. P. Oil volatility, oil and gas firms and portfolio diversification. *Energy Economics* 2018; 70, 499-515. <https://doi.org/10.1016/j.eneco.2018.01.023>
14. Kanshio, S. A review of hydrocarbon allocation methods in the upstream oil and gas industry. *Journal of Petroleum Science and Engineering* 2020; 184, 106590. <https://doi.org/10.1016/j.petrol.2019.106590>
15. Al Musadieq, M., & Hutahayan, B. The impact of purchasing and inventory performance on sustainable financial performance with fiscal term as a moderating factor (A case study from oil and gas industry in Indonesia). *Journal of Open Innovation: Technology, Market, and Complexity* 2024; 10(1), 100225. <https://doi.org/10.1016/j.joitmc.2024.100225>
16. Mohan, P., Strobl, E., & Watson, P. Innovation, market failures and policy implications of KIBS firms: the case of Trinidad and Tobago's oil and gas sector. *Energy policy* 2021; 153, 112250. <https://doi.org/10.1016/j.enpol.2021.112250>
17. Koroteev, D., & Tekic, Z. Artificial intelligence in oil and gas upstream: Trends, challenges, and scenarios for the future. *Energy and AI* 2021; 3, 100041. <https://doi.org/10.1016/j.egyai.2020.100041>
18. Hidayatno, A., Setiawan, A. D., Subroto, A., Saheruddin, H., Wardono, S., Romijn, H., & Zafira, Z. Exploring the Food-versus-Fuel Debate in Indonesia's Palm Oil Industry Toward Sustainability: A Model-Based Policymaking Approach. *Energy Nexus* 2025; 100511. <https://doi.org/10.1016/j.nexus.2025.100511>

19. Purwanto, W. W., Muharam, Y., Pratama, Y. W., Hartono, D., Soedirman, H., & Anindhito, R. Status and outlook of natural gas industry development in Indonesia. *Journal of Natural Gas Science and Engineering* 2016; 29, 55-65. <https://doi.org/10.1016/j.jngse.2015.12.053>
20. Kusuma, G., Sharmina, M., & Gallego-Schmid, A. Decarbonising the electricity sector in Indonesia: Contradictions in national policies. *Procedia CIRP* 2025; 135, 1113-1118. <https://doi.org/10.1016/j.procir.2025.01.086>
21. Sun, D., Xia, L., Wang, K., Lei, Z., Zou, Q., Li, Z., & Liu, S. Better opportunities created for investors by evolution of petroleum contracts in Iraq under the background of the recovery of oil prices. *Journal of Petroleum Science and Engineering* 2022; 209, 109890. <https://doi.org/10.1016/j.petrol.2021.109890>
22. Acquah-Andoh, E., Putra, H. A., Ifelebuegu, A. O., & Owusu, A. Coalbed methane development in Indonesia: Design and economic analysis of upstream petroleum fiscal policy. *Energy Policy* 2019; 131, 155-167. <https://doi.org/10.1016/j.enpol.2019.04.035>
23. Cook, M. Trends in global energy supply and demand. In *Developments in Petroleum Science* 2021; 71, 15-42. <https://doi.org/10.1016/B978-0-12-821190-8.00002-2>
24. Guo, W., Yang, B., Ji, J., & Liu, X. Abundance of natural resources, government scale and green economic growth: An empirical study on urban resource curse. *Resources Policy* 2023; 87, 104303. <https://doi.org/10.1016/j.resourpol.2023.104303>
25. Kwarto, F., Nurafiah, N., Suharman, H., & Dahlan, M. The potential bias for sustainability reporting of global upstream oil and gas companies: a systematic literature review of the evidence. *Management Review Quarterly* 2024; 74(1), 35-64. <https://doi.org/10.1007/s11301-022-00292-7>
26. Alhammadi, A., Soar, J., Yusaf, T., Ali, B. M., & Kadirgama, K. Redefining procurement paradigms: A critical review of buyer-supplier dynamics in the global petroleum and natural gas industry. *The Extractive Industries and Society* 2023; 16, 101351. <https://doi.org/10.1016/j.exis.2023.101351>
27. Hajiyev, N., Abdullayeva, S., & Abdullayeva, E. Financial stability strategies for oil companies amidst high volatility in the global oil products market. *Energy Strategy Reviews* 2024; 53, 101377. <https://doi.org/10.1016/j.esr.2024.101377>