

Why the unitization process is an important issue when dealing with the Brazilian Pre-salt Polygon

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ABSTRACT

The Pre-Salt Polygon¹ is amongst the most important oil and natural gas discoveries of the last few years in Brazil and globally. In July 2017, its production represented 48.2 per cent of total Brazilian output.² Due to the geological structure of the area, and the presence of fields already granted under concession agreements and onerous assignment agreements, this will probably result in the signing of many unitization agreements (UAs) in the next few years. The Brazilian National Petroleum Agency (ANP) is about to regulate ‘procedures and guidelines for the unitization agreement negotiation’, according to Article 34 of the Pre-salt Law. In compliance with this article, ANP published Resolution No 25 of 2013 on 9 July 2013, which regulates the unitization procedure in Brazil, covering onshore and offshore E&P operations. These rules provided solutions to issues that the revoked Article 27 of Petroleum Law, the various E&P concession agreements and other ANP Resolutions could not solve, although other issues, especially relating to open areas located in the Pre-salt Polygon, remain. The National Energy Policy Council (CNPE) has published Resolution No 8 of 2016, establishing unitization guidelines for the process of involving open areas. CNPE has also launched Resolution No 7 of 2017, which provides guidelines on local content in unitization areas. Following the new CNPE policies, ANP amended its Resolution No 25 of 2013, through Resolution No 698 of 2017. This article gives a brief update of the Brazilian regulatory framework for E&P activities and discusses the unitization process, highlighting the main changes and observing what will be important to consider in all the forthcoming unitization activity.

1. INTRODUCTION

The Brazilian unitization process in the Pre-salt Polygon is more complex than in other petroleum-producing countries because there are three different fiscal regimes in force in Brazil—production-sharing agreements, concession agreements and onerous assignment agreements.³ Some unitization agreements (UAs) will

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1 It is important to distinguish the Pre-salt Polygon and Pre-salt geological. The Pre-salt Polygon is the area of around 150.000 km² established in the Pre-salt Law. The Pre-salt geological is a geological province located below a layer of evaporite deposits formed approximately 120 million years ago. <<http://www.presalpetroleo.gov.br/ppsa/comunicacao/conteudo-tecnico>> accessed 15 September 2017.

2 ANP. Boletim da Produção de Petróleo e Gas Natural. <http://www.anp.gov.br/wwwanp/images/publicacoes/boletins-anp/Boletim_Mensal-Producao_Petroleo_Gas_Natural/Boletim-Producao_julho-2017.pdf> accessed 15 September 2017.

3 For more information about fiscal regimes in Brazil: Luciana Palmeira Braga and Alexandre Salem Szklo, ‘The Recent Regulatory Changes in Brazilian Petroleum Exploration and Exploitation Activities’ (2014) 7(2) *Journal of World Energy Law and Business* 120–39.

involve more than one type of fiscal regime. This process is complex also because of the fact that, when the reservoir extends towards an open area, Pré-Sal Petróleo SA will mandatorily negotiate the UA on behalf of the Brazilian Government. The Pre-salt Polygon is a prolific area, and the volume of the oil and gas in this shared reservoir will often be high. Due to the geological structure of this area, the unitization process is an issue that is very likely to occur when developing a field in the Pre-salt Polygon.

In order to regulate this process, ANP published Resolution No 25 of 2013 (the ANP Unitization Resolution), regulating the conventional unitization procedure, creating the unitization promise (UP) and establishing rules for unitization involving an open area. It is important to note that this Resolution makes no distinction between onshore and offshore operations. Since the ANP Unitization Resolution has come into force, four UAs have been signed by Pré-Sal Petróleo involving open areas located in the Pre-salt Polygon, and three of them were approved by ANP.⁴ Two further UAs were signed involving contracting areas located in the Pre-salt Polygon.⁵

The adoption of the ANP Unitization Resolution in the negotiations of the first UAs, especially those involving open areas, evidenced the need to change some rules which did not provide adequate solutions for negotiation practice, as well as to establish new rules to fill certain gaps. In 2016, after the government shift resulting from the impeachment of President Dilma, Brazil began to adopt a more liberal economic policy. CNPE, through Resolution No 8 of 2016⁶ (the CNPE Unitization Resolution), issued guidelines for unitization involving open areas, filling important gaps in these processes.

CNPE also published new guidelines for local content, established the government's trading policy for oil and gas resulting from production sharing agreements and UAs and established a schedule of bidding rounds (scheduling the Second and Third Bidding Rounds under the production sharing regime for 2017, the Fourth Bidding Round for 2018 and the Fifth Bidding Round for 2019). Thus, CNPE intended to address the previous demands of the market, seeking to encourage the granting of new E&P agreements, including in relation to the Pre-salt.

Important changes have been introduced in the Brazilian regulatory framework for E&P activities since Temer took over the Brazilian Presidency, including changes related to the Unitization Resolution. For the above reasons, unitization in Brazil is a complex issue, particularly when dealing with the Pre-salt. This article aims to present the main changes that have occurred in the Brazilian regulation of E&P activities and to analyse the current situation regarding the regulation of the unitization process in Brazil.

2. A BRIEF UPDATE ON THE BRAZILIAN REGULATORY FRAMEWORK FOR E&P ACTIVITIES

After the discovery of the Lula field (the Tupi prospect) in the Pre-salt in 2007,⁷ a new regulatory framework was launched in 2010. Three new laws were published. The first was the Law of Onerous Assignment and Petrobras' Capitalization,⁸ which instituted a new type of E&P agreement—'the onerous assignment agreement'—and authorized the government to subscribe for Petrobras' joint-stock shares and to pay for them with federal public debt securities. The second created the new Brazilian national oil company Pre-salt Petróleo SA.⁹ The third was the Pre-salt Law,¹⁰ which instituted the production sharing regime for the Pre-salt area (the Polygon was delimited in the Annex of the Law) and for strategic areas. This law also

4 Pré-Sal Petróleo. The UAs are: Tartaruga Mestiça; Lula/ Sul de Lula; Sapinhoa; Nautilus. <<http://www.presalpetroleo.gov.br/ppsa/indivualizacao-de-producao/unitizacao>> accessed 15 September 2017.

5 ANP. The UAs are: Xerelete/Xerelete Sul and Albacora e Albacora Leste (AB210 and AB140).

6 For more information <http://www.mme.gov.br/documents/10584/3201726/Resolu%C3%A7%C3%A3o_CNPE_8.pdf/61c81ec5-d59a-4d1a-a5ea-21b61d2343dd> accessed 15 September 2017.

7 It is important to say that activities were already carried out in Pre-salt Polygon before Lula Field discovery, eg in 'Parque das Baleias' by Petrobras or in 'Parque das Conchas' by Shell.

8 Federal Law No 12.276 of 2010.

9 Federal Law No 12.304 of 2010.

10 Federal Law No 12.351 of 2010.

established the exclusive operation of Petrobras and its minimum participation of 30 per cent in the Production Sharing Agreement (PSA) and amended some provisions in the Petroleum Law. With the publication of these new laws, a mixed regulatory regime was introduced in Brazil, composed of three distinct fiscal regimes.¹¹

Regarding the change in the regulatory framework, Pedro Florêncio¹² noted:

In 2010, the Brazilian government made significant legal changes in its oil sector, inverting the previously undertaken market reforms and intensifying state interference in the sector. The main goal was to increase governmental strategic resource control to guarantee that future Brazilian generations could take advantages of the proceeds of the oil reserves.

In September 2010, the government signed an onerous assignment agreement with Petrobras,¹³ granting Petrobras E&P rights under blocks located in the Pre-salt area (Franco, Florim, Northeast of Tupi, South of Tupi, South of Guará, Entorno de Iara and Peroba). Under the terms of this agreement, Petrobras has the right to produce up to 5 billion barrels of oil and natural gas for 40 years, extendable by five more years.

The initial value of the agreement was based on agreed contract value of R\$74,807,616,407.00 (seventy-four billion, eight hundred and seven million, six hundred and sixteen thousand, four-hundred and seven reais¹⁴). Petrobras made the payment from the sale of common and preferred shares, through a public capitalization process, which gave R\$67.8 billion in Financial Treasury Bills and R\$7 billion in cash.¹⁵

Ramirez-Cendrero and Paz¹⁶ report that the percentage of Petrobras' investments in E&P increased significantly from 2010, accounting for more than 65 per cent of the company's total investments. This is due principally to the Pre-salt operations developed in the blocks governed by onerous assignment agreements and concession agreements.

In 2013 ANP restarted the auctions,¹⁷ organizing the Eleventh Bidding Rounds, focusing on new technological frontiers and mature areas, and the Twelfth Bidding Round, focusing on the exploration of gas,¹⁸ both under the concession regime. ANP also organized the first Bidding Round to sign a PSA, in which the Libra area was offered.

The Libra area, with estimated volumes between 8 and 12 billion barrels recoverable, was acquired by the only consortium that offered a bid in the auction, made up of Petrobras (40 per cent), Shell (20 per cent), Total (20 per cent), CNPC (10 per cent) and CNOOC (10 per cent). The profit oil rate offered was the minimum foreseen in the tender protocol of 41.65 per cent. The government received R\$15 billion¹⁹ as a signature bonus.²⁰

11 For more information about E&P agreements: Braga and Szklo (n 3), OUP on behalf of the AIPN.

12 Pedro Florêncio, 'The Brazilian 2010 Oil Regulatory Framework and Its Crowding-out Investment Effects' (2016) 98 Energy Policy 378–89.

13 It should be remarked that the Law provided for a single contract for assignment is onerous.

14 According the Brazilian Central Bank exchange rate of 3 September 2010, the day of the signature, it would be US\$43,288,938,347.76.

15 Francisco José Rocha De Sousa, 'A Cessão onerosa de áreas do pré-sal e a capitalização da petrobras' Brasília <http://www2.camara.gov/pesquisa/publicacoes/estnottec/tema16/2011_907.pdf> accessed 6 December 2011. Consultoria Legislativa, Câmara dos Deputados and Rodrigo Dambros Lucchesi, 'Regimes.br/documentos-e- fiscais de exploração e produção de petróleo no Brasil e no mundo' (Rio de Janeiro: COPPE/UFRJ, 2011).

16 Juan M Ramirez-Cendrero and María J Paz, 'Oil Fiscal Regimes and National Oil Companies: A Comparison between Pemex and Petrobras' (2017) 101 Energy Policy 473.

17 The 10th Round, held by ANP in 2008, was the last bidding round performed before the changes in the regulatory framework. There were only blocks onshore, respecting the government's recommendation not to include blocks in the Pre-salt province.

18 For more information about shale gas in Brazil: Ilana Zeitoune, *Petróleo e Gás no Brasil. Regulação da Exploração e da Produção* (1st edn, Livro Novo, Forense 2016).

19 According the Brazilian Central Bank exchange rate of 2 December 2013, the day of the signature, it would be US\$6,396,861,000.00.

20 For more information about First Bidding Round under production sharing regime <http://www.brasil-rounds.gov.br/round_p1/index.asp> accessed 15 September 2017.

Pré-Sal Petróleo, which is responsible for monitoring the PSA and has a mandatory presence in the consortium as a government representative, was only officially established in August 2013, through Decree No 8,063. Its directors were appointed days before the PSA bidding round. For Florencio,²¹ the uncertainty regarding the performance of Pré-Sal Petróleo in the consortium is a cause of concern for potential investors and adds risks to investments in the Pre-salt area. As a result, discussions on a proper regulatory framework for the Pre-salt continued to occur. The Pre-salt Law raised questions, mainly in relation to the exclusive operation of Petrobras and the creation of Pré-Sal Petróleo.²² In addition, considerations were made regarding the return of the concession regime to the Pre-salt area²³ and the adoption of service contracts for the direct contracting of Petrobras.²⁴ In 2013, two bills were proposed to change the Pre-salt Law. Bill 4973/13 proposed the revocation of the exclusive operation of Petrobras and its mandatory participation with a minimum of 30 per cent in the consortium. Bill 6726/13 proposed the return of the Pre-salt area to the concession regime.²⁵

In 2013 and 2014, Petrobras declared the commerciality of six areas under the onerous assignment agreement, which originated in the fields of Sul de Lula, Buzios, Sul de Sapinhoa, Itapu and Sepia and approved the development areas of Norte de Berbigão, Sul de Berbigão, Norte de Sururu, Sul de Sururu and Atapu. As the Onerous Assignment and Petrobras Capitalization Law establishes the possibility of revising an onerous assignment agreement after a declaration of commerciality has been made, the Brazilian Government started the process of reviewing the onerous assignment agreement.

In addition, CNPE published Resolution No 01/2014²⁶ approving the direct contracting of Petrobras to produce, under a PSA, the volume surplus authorized in the onerous assignment agreement for the fields of Buzios, Itapu and Sepia and for the development areas of Norte de Berbigão, Sul de Berbigão, Norte de Sururu, Sul de Sururu and Atapu.²⁷

The processes for revising the onerous assignment agreement and direct contracting by Petrobras have not yet concluded because, since the end of 2014, the financial situation of Petrobras was greatly jeopardized by corruption scandals, the political situation in Brazil, and the fall in the price of oil.²⁸

According to *Petroleum Intelligence Weekly* (PIW) 16 January 2017,²⁹ there are efforts underway to change the law to allow the participation of private companies in onerous assignment agreements, since Petrobras requires technical and commercial collaboration to continue these projects.

The 13th Bidding Round was carried out in December 2015. According to Pinto Jr,³⁰ the results were weak. This was the first time that Petrobras had not participated in an auction since the First Bidding Round in 1999, because the increase in its production and reserves was accompanied by strong debt, which, in a context of falling oil prices³¹ and devaluation of the Brazilian exchange rate, proved unsustainable.³² This context

21 Florêncio (n 12).

22 *ibid.*

23 For more information <<http://www.robertorequiao.com.br/wp-content/uploads/2013/10/estudo-disputa-lucro-pr%C3%A9-sal-e-licita-%C3%A7%C3%A3o-de-libra.pdf>> accessed 15 September 2017.

24 Larissa Araujo Rodrigues and Ildo Luís Sauer, 'Exploratory Assessment of the Economic Gains of a Pre-Salt Oil Field in Brazil' (2015) 87 *Energy Policy* 87, 486.

25 For more information <<http://www2.camara.leg.br/camaranoticias/noticias/ECONOMIA/496020-PROJETO-PROPOE-QUE-EXPLORACAO-NA-AREA-DO-PRE-SAL-SEJA-FEITA-SOB-REGIME-DE-CONCESSAO.html>> accessed 15 September 2017.

26 For more information <http://www.mme.gov.br/documents/10584/1250812/Resolucao_CNPE_1_2014.pdf/2f07964a-2592-4eba-a062-c87a24d2d6bd> accessed 17 September 2017.

27 For more information <http://www.mme.gov.br/documents/10584/1819973/CNPE_Memoria_28_Reuniao_24062014_Final.pdf/bb840f3b-878d-448a-a51a-bd1a7a13445a> accessed 19 September 2017.

28 For more information <<http://www.petrobras.com.br/fatos-e-dados/esclarecimento-sobre-o-processo-de-revisao-do-contrato-de-cessao-onerosa.htm>> accessed 19 September 2017.

29 *Petroleum Intelligence Weekly* (PIW), 19 January 2017.

30 Helder Queiroz Pinto Jr, *Economia da Energia: Fundamentos Economicos, Evolucao Historica e Organizacao Industrial* (Elsevier 2016).

31 By 2015 Brent's average barrel price was US\$52.39 according to BP Statistical Review 2017.

32 Ramírez-Cendrero and Paz (n 16).

was further aggravated by the corruption scandals within the scope of the Car Wash scandal,³³ undermining Petrobras's financing capacity.³⁴

President Dilma's impeachment in August 2016 ended a 13-year cycle of the ruling Workers' Party, shifting policy orientation from greater governmental intervention in the oil sector to a liberal government.³⁵ The presidency of Petrobras also changed. In taking control of the state-owned company, Pedro Parente warned that Petrobras needed partners to explore the Pre-salt. Thus, it was necessary to amend the Pre-salt Law, opening the possibility for other companies to operate in the Pre-salt Polygon.³⁶

At the end of 2016, Federal Law No 13.365 amended the Pre-salt Law, removing the obligation for Petrobras to be the sole operator of the Pre-salt area. However, it was foreseen that Petrobras' preemptive right over the operation in the blocks would be offered in the Bidding Rounds. Upon exercising the pre-emptive right, Petrobras could participate in the consortium with a minimum share input of 30 per cent.³⁷ Federal Decree No. 9041 of 2017, which regulated Federal Law No 13.365, also provided that, in the event of Petrobras exercising its pre-emptive right, it could refuse to sign the PSA if the offer was above the minimum established in the tender protocol.

In early 2017, CNPE authorized the next three Bidding Rounds: the Second³⁸ and the Third³⁹ Production Sharing Bidding Rounds, for the Pre-salt area, and the 14th Bidding Round,⁴⁰ to sign concession agreements. Also, through Resolution No 10/2017,⁴¹ CNPE published a plan for bidding rounds in 2018–19, authorizing: (i) the 15th and 16th Bidding Rounds to sign concession agreements, indicating which sectors should be contemplated in ANP studies; (ii) the Fourth and Fifth Production Sharing Bidding Rounds, indicating the prospects to be evaluated and (iii) the Fifth and Sixth Bidding Rounds to offer marginal accumulation. According to PIW 11 September 2017,⁴² the next Bidding Rounds 'are promising, with Western majors such as Exxon Mobil, BP, Repsol and Royal Dutch Shell, and state firms such as China National Offshore Oil Corp., Malaysia's Petronas and Russia's Rosneft among the list of 32 that qualified'.

Furthermore, CNPE solved certain issues that caused complaints and increased uncertainties in the oil sector.⁴³ At the beginning of 2017, CNPE published Resolution No 7/2017⁴⁴ establishing new guidelines for local content. It determined that for the 14th Round the local content commitments would be defined in the tender protocol, no longer being subject to criteria for judging the offers as used in the 13th Round. Another important change was the simplification of requirements. It has ceased to require more than 70 commitment items/sub-items, instead requiring only a global commitment in the exploration phase and three macrogroups in the development, for offshore areas; and only a global commitment to exploration and development phases for onshore areas. Furthermore, this Resolution has determined that the UA involving open areas

33 For more information about Car Wash Scandal <<http://lavajato.mpf.mp.br/atuacao-na-1a-instancia/investigacao/historicoe>> accessed 21 September 2017; <<https://www.theguardian.com/world/2017/jun/01/brazil-operation-car-wash-is-this-the-biggest-corruption-scan-dal-in-history>> accessed 21 September 2017.

34 In 2015, Petrobras recorded a net loss of around US\$8.9 billion due to the impairment of assets and investments, mainly due to the decline in oil prices and an increase in discount rates (around US\$12.7 billion); And foreign exchange losses and interest expenses (around US\$8.4 billion). For more information <<http://www.petrobras.com.br/fatos-e-dados/divulgacao-de-resultados-do-exercicio-de-2015.htm>> accessed 21 September 2017.

35 *PIW*, 19 June 2017.

36 *PIW*, 3 October 2016.

37 Federal Law No 13.365, art 1.

38 For more information <http://www.brasil-rounds.gov.br/Round_P2/portugues_RP2/setores.asp> accessed 21 September 2017.

39 For more information <http://www.brasil-rounds.gov.br/Round_P3/portugues_RP3/setores.asp> accessed 21 September 2017.

40 For more information <http://www.brasil-rounds.gov.br/Round_14/portugues_R14/setores.asp> accessed 21 September 2017.

41 For more information <http://www.mme.gov.br/documents/10584/4489543/Resolu%C3%A7%C3%A3o_10_CNPE_Planejamento_Rodadas_2018-2019.pdf/2f9c90d1-4d7f-4299-b7d6-f002a060ec09> accessed 21 September 2017.

42 *PIW*, 11 September 2017.

43 *PIW*, 19 June 2017.

44 For more information <http://www.mme.gov.br/documents/10584/4489543/Resolu%C3%A7%C3%A3o_CNPE+7+CNPE_Conte%C3%BADO_Local.pdf/b62faf26-cf2a-460e-8660-37a6763b9d45> accessed 21 September 2017.

cannot create additional commitments for the areas under an E&P agreement. This Resolution has changed the government policy of the Worker's Party that aimed to promote national industry. The high local content indices required were proving difficult to achieve due to the lack of capacity of the national industry.

CNPE has also changed the methodology for calculating the reference price⁴⁵ and has established a policy for trading the government's share of profit oil which results from the PSA and the government portion's of shared reservoirs in UAs signed by Pré-Sal Petróleo.⁴⁶ Pré-Sal Petróleo was waiting for this policy to be defined in order to be able to trade the oil and gas due to the government. According to Federal Law No 12.858 of 2013, the revenues resulting from the government portion of the shared reservoir in the UAs signed by Pré-Sal Petróleo will be given exclusively for public education, with a priority for basic education, and for health.

As discussed in the 'Introduction' to this article, CNPE has launched guidelines for the unitization process involving open areas, and requested ANP to regulate the parameters of production appropriation and apportionment of a shared reservoir in an open area. CNPE aims to fill important gaps in this process, looking to expand investment in Pre-salt.

The intense introduction of rules, corresponding to the demands of the industry, inaugurates a new phase for the Brazilian oil sector. New rules will guide the upcoming bidding rounds. According to PIW 27 March 2017,⁴⁷ despite the problems in Brazil, the International Oil Companies (IOCs) remain interested in the potential of the massive Pre-salt reserves, especially those IOCs that are already operating in the Pre-salt.⁴⁸ As UAs are likely to occur in the Pre-salt Polygon, it is important to know which Brazilian rules regulate this issue. These will be analysed in the following sections of this article.

3. UNITIZATION UNDER THE PETROLEUM AND PRE-SALT LAWS

The literature is unanimous in defining a UA as a means to avoid individualistic, predatory and irrational oil and natural gas production (Weaver and Asmus,⁴⁹ Duval and others,⁵⁰ Smith and others,⁵¹ Owen Anderson,⁵² Libecap and Wiggins,⁵³ Bucheb,⁵⁴ Marilda Rosado de Sá Ribeiro,⁵⁵ Artur Watt Neto,⁵⁶ Amorelli Junior and Lucio Carpio,⁵⁷ David and others⁵⁸).

The unitization process is regulated by Article 33 of the Pre-salt Law, which, unlike its predecessor, revoked Article 27 of the Petroleum Law⁵⁹ and asserts that the unitization process should start when the reservoir extends beyond the contracted block. This rule applies to the concession and the production sharing

45 For more information <http://www.mme.gov.br/documents/10584/4489543/Resolu%C3%A7%C3%A3o_CNPE+5_2017_PR_P.pdf/dd81aecc-40c5-493d-aa01-060738be2667> accessed 21 September 2017.

46 For more information http://www.mme.gov.br/documents/10584/3201726/Resolu%C3%A7%C3%A3o_CNPE_12.pdf/c95f7c7d-75c2-4578-8d46-d5dc282ffa72> accessed 21 September 2017.

47 PIW, 27 March 2017.

48 (PIW, 27 March 2017) pointed out Shell, Statoil and Total.

49 Jacqueline Lang Weaver and David F Asmus, 'Unitizing Oil and Gas Fields Around the World: A Comparative Analysis of National Laws and Private Contracts' (2006) 28(3) *Houston Journal of International Law* 6–16.

50 Duval and others, *International Petroleum Exploration and Exploitation Agreements: Legal, Economic and Policy Aspects* (2nd edn, Barrows 2009).

51 *International Petroleum Transactions* (Rocky Mountain Mineral Law Foundation, Denver, CO 2010).

52 'Mutiny: The Revolt against Unsuccessful Unit Operations' (Rocky Mountain Mineral Law Institute, Houston, TX 1984).

53 Gary D Libecap and Steven N Wiggins, 'The Influence of Private Contractual Failure on Regulation: The Case of Oil Field Unitization' (1985) 93(4) *Journal of Political Economy* 690.

54 José Alberto Bucheb, *Direito do Petróleo: a regulação das atividades de exploração e produção de petróleo e gás natural no Brasil* (Lumen Juris, 2007).

55 Marilda Rosado de Sá Ribeiro, *Direito do Petróleo* (3rd edn, Rev atual e ampl, Renovar 2014).

56 Artur Watt Neto, *Petróleo, Gás Natural e Biocombustíveis. Coleção Direito Econômico* (Saraiva 2012).

57 Dirceu Cardoso Amorelli Junior and Lucio Carpio, 'Unitization of Oil and Gas Fields in Brazil' (2016) <https://www.researchgate.net/publication/308387931_Unitization_of_oil_and_gas_fields_in_Brazil> accessed 30 January 2017.

58 Olavo B David; Luiz Vicente S Lopes and Luciana P Braga 'Compromisso de Individualização da Produção e Unitização em Áreas não Contratadas à luz da Resolução ANP No 25/2013' (September 2014)

59 Federal Law No 9.478 of 1997.

regimes, and does not require the presence of different holders of E&P rights or the existence of E&P agreements in all the unitized areas.

It should be noted that, under the regime of Article 27 of the Petroleum Law, the existence of other concessionaires was the premise for the establishment of the unitization procedure.⁶⁰ Thus, a clear legal solution has not been found for the cases in which the shared reservoir extends to open areas or sits in areas granted to the same holder of E&P rights, but under conflicting contractual terms.

In this context, the eloquent silence of Article 33 of the Pre-salt Law suggests a solution for both situations above. Indeed, in the absence of a legal obstacle to the establishment of the unitization procedure in open areas, or in areas granted to a single petroleum company or consortium, the regulator could fill the legislative gaps for both hypotheses. This practice has become relatively usual in the country under such a plurality of exploration and production fiscal regimes and the magnitude of the reservoirs within the Pre-salt Polygon.⁶¹

Article 34 of the Pre-salt Law establishes ANP's competence to: (i) regulate the procedures and guidelines for the UA's signature, giving the minimum information required in the agreement, and (ii) following the agreement negotiations, as per the article transcript:

Article 34. The ANP shall regulate procedures and guidelines for the preparation of the production unitization agreement, which shall establish:

I – the interest of each of the parties in the unitized deposit, as well as hypotheses and reviewing criteria;

II – the development plan for the area object of production unitization; and

III – dispute resolution mechanisms.

Sole Paragraph. ANP shall monitor the negotiation between the interested parties on terms of [the] production unitization agreement.

According this provision, a UA must be signed before the development phase. As Libecap and Wiggins's⁶² analysis suggests, it is easiest to negotiate a UA during the exploration phase, because

(...) there is little asymmetric information across bargaining parties regarding relative lease values to block agreement. On the other hand, with field development differential information about lease productivity emerges, and disputes arise over lease value and unit shares.

Article 35 of the Pre-salt Law determines that the UA should nominate the operator of the respective reservoir. Thus, the UA operator may be different to the ones appointed in the E&P agreements for the blocks where the shared reservoir sits.

With regard to open areas, whose E&P rights have not yet been granted by an E&P agreement, the Pre-salt Law answers questions pending from the Petroleum Law. Its Article 36 establishes the competence of

60 See the text of cited articles, with our highlights: art 27, *caput*, Petroleum Law (revoked)—In the case of fields extending over adjoining blocks, operated by other concessionaires, they shall sign a unitization agreement. art 33, *caput*, Pre-salt Law—The unitization procedure for production of oil, natural gas and other fluid hydrocarbons shall be implemented whenever it is observed that the reservoir extends beyond the block granted under concession regime or contracted under the production share regime.

61 Vinicius Farias Ribeiro and Robson Prates Moreira, 'Impactos dos diferentes regimes regulatórios na individualização da produção' (Rio Oil & Gas Conference, Rio de Janeiro 2012).

62 Libecap and Wiggins (n 53).

the new national oil company—Pré-Sal Petróleo SA,⁶³ acting as a representative of the Brazilian Government and subsidized by ANP appraisal operations—to sign the UA with the other parties involved whenever the shared reservoir is located, at least partially, in the Pre-salt Area or the Strategic Area. Whenever the shared reservoir is fully outside the Pre-salt Area or the Strategic Area, ANP has the competence to sign the UA, as provided for in Article 37. In both cases, the UA signed with either Pré-Sal Petróleo or ANP shall oblige the future contracted party or concessionaire. However, this article must be analysed with caution, since the Brazilian Government does not focus on profits maximization but protects the public interest. It is reasonable to allow the parties a minimal degree of autonomy to make some amendments, provided that they will cause no harm to the public interest and are subject to ANP's approval. Thus, the parties must maintain parameters such as local content and government participation, but could change, for example, the percentage of participation of the parties and the definition of the unit operator.⁶⁴

In addition, Pré-Sal Petróleo or ANP, as representatives of the Brazilian Government, have prerogatives that are not subrogated to the new contractor under a PSA. Therefore, the said amendments, are essential, as long as they do not prejudice the nucleus of the UA, retained in the contractual clauses that deal with the subsections of Article 34 of the Pre-Salt Law.

Also important is the second paragraph of Article 36, establishing that the E&P regime to be adopted in the open areas is independent of the current regime for adjacent areas. Thus, even if the shared reservoir is partially located in an area under a concession or under a production sharing regime, the open area will not be subject to such regime, but it will be regulated by specific rules.

Regarding open areas, during the UA negotiation between private companies and the Brazilian Government represented by Pré-Sal Petróleo or by ANP, Petrobras could be hired by ANP to perform appraisal activities in the shared reservoir, as stated in the Pre-salt Law. However, until now has not been possible to foresee how such hiring could actually be carried out.

The UAs will be approved by ANP, which will issue its decision within 60 days of receipt of the agreement.

The Pre-salt Law ended the misunderstanding about the sole paragraph of Article 27 of the Petroleum Law, replacing the term 'arbitration report' with 'technical report'. This is because the provision of the Petroleum Law dictated that when the parties did not reach an agreement, ANP would determine, based on the arbitration report, how the rights and obligations would be equitably appropriate. The term 'arbitration report' caused ambiguity and may be interpreted as an arbitration award or as an administrative decision. Divergent doctrinal views then ensued, as Bucheb⁶⁵ reported in his work. Some authors believed that the paragraph recommended arbitration and others suggested that compulsory arbitration was flagrantly unconstitutional. The Pre-salt Law solved the dilemma as follows:

Article 40. At the end of the term referred to in paragraph 2 of article 33 and, in the absence of agreement between the parties, ANP shall determine, within one hundred and twenty (120) days and based on technical report, how rights and obligations over the reservoir will be appropriated and notify the parties to enter into the production unitization agreement.

This provision also includes a new possibility for E&P agreement termination: refusal to sign the UA. However, it is unclear whether the simple refusal of one party of a possible consortium would lead to termination or only the refusal of all parties of the consortium would cause the end of the concession or the PSA. In the first situation, the other parties could take the E&P rights of the party which refused to sign the

63 About Pré-Sal Petróleo (n 4) 7(2) OUP on behalf of the AIPN.

64 Luciana Palmeira Braga, *Pré-Sal: Individualização da Produção e os Contratos Internacionais de Petróleo Série EDB* (Saraiva, Rio de Janeiro 2014).

65 José Alberto Bucheb (n 54).

agreement, upon existence of such a provision in the UA or in the Joint Operating Agreement (JOA) and also upon technical qualification. However, there is evidence of excessive strictness by the legislature, as the shared reservoir can only represent a part of the agreement and refusal to sign the UA could cause the consortium to lose the E&P rights over other areas, which might even already be in production.⁶⁶

Finally, the Pre-salt Law provides that the development and production of the reservoir shall be suspended until the UA's approval by ANP, which may, however, authorize the continuity of operations under previously defined conditions, provided that at least one of the parties so requests or ANP so decides *ex officio*, as stated by Article 11 of ANP Resolution No 25/2013.

4. UNITIZATION RULES AFTER THE CNPE UNITIZATION RESOLUTION

In compliance with the requirements established by the preamble of Article 34 of the Pre-salt Law, the ANP published Resolution No 25 of 2013 on 8 July 2013 (the ANP Unitization Resolution) to regulate the unitization procedure. However, the ANP Unitization Resolution rules for processes involving open areas were drafted without practical experience. Certain shared reservoirs involving open areas were awaiting the ANP regulation in order to start negotiations.⁶⁷

The adoption of the ANP Unitization Resolution rules for open areas highlighted the necessity to change some of its provisions, as David and others pointed out,⁶⁸ and filled some gaps for this category of unitization. After intense debate with the market, represented by the Brazilian Institute of Petroleum, Natural Gas and Biofuels (IBP) and the companies that were negotiating the UAs involving open areas, the CNPE Unitization Resolution was published, which established some guidelines for open areas. Following the CNPE's new policies, ANP amended its Resolution No 25 of 2013, through Resolution No 698 of 2017.

This section will analyse the CNPE guidelines and the ANP Unitization Resolution rules, commenting on the amendments incorporated by Resolution No 698 of 2017.

CNPE Unitization Resolution

CNPE created the Working Group through CNPE Order No 452 of 2015 involving the Energy and Mines Ministry (MME), the ANP, Pré-Sal Petróleo and Brazilian Energy Research Company⁶⁹ (EPE) representatives in order to write the CNPE Unitization Resolution. The CNPE Unitization Resolution draft submitted by the Working Group to CNPE was very detailed, contained 20 articles, and dealt with the reimbursement of investments and apportionment of the shared reservoir production. The published version was reduced to nine articles, letting ANP regulate these issues through the amendment of the ANP Unitization Resolution.⁷⁰

Note that, although the CNPE Unitization Resolution dates back to 14 December 2016, it was only officially published on 6 June 2017.

The preamble of the CNPE Unitization Resolution establishes CNPE's competence to make proposals to the Brazilian President regarding public policy related to rational use of energy resources, the fundamentals of unitization and Pré-Sal Petróleo and ANP competence to sign UAs involving open areas.

The Resolution determines that ANP must communicate with the MME⁷¹ immediately about the possibility of a shared reservoir in open areas. Thus, in order to be able to perform this duty, ANP must require that parties notify it of the mere expectation of a shared reservoir involving an open area. This provision is

66 Braga (n 64).

67 Como exemplos pode-se citar o reservatório compartilhado do prospecto de Gato do Mato, operado pela Shell, e o reservatórios compartilhado do campo de Lula, operado pela Petrobras, cujas notificações de extensão ocorreram antes da publicação da ANP Unitization Resolution, mas cujos processos de negociação se iniciaram somente após a publicação desta resolução.

68 David and others (n 58).

69 For more information <<http://www.epe.gov.br/Paginas/default.aspx>> accessed 21 September 2017.

70 The CNPE Unitization Resolution was approved by the Council on 14 December 2016 but it was only published on 6 June 2017.

71 For more information about MME, Braga and Szklo (n 3).

different from the former rule in the ANP Unitization Resolution, which determined that only the finding of the shared reservoir might be communicated.

The CNPE Unitization Resolution states that the open area in a shared reservoir must be promptly offered, preferably before the parties declare the commerciality of the shared reservoir. Thus, the mere possibility of a shared reservoir is reason enough to prioritize the offer of an open area.

According to Brasil Energia,⁷² the biggest controversy brought by the ANP Unitization Resolution was related to the Brazilian Government's reimbursement of investments already incurred by the holders of E&P rights in the shared reservoir. Tavares and others⁷³ carried out an analysis of the economic impacts of the former rules on projects of unitization in the Pre-salt deposits through simulations and concluded that the rules as defined compromised the profitability of the projects, making them unfeasible under the applicable conditions. The solutions presented by the available rules were not satisfactory; therefore, it was necessary to set some guidelines published by CNPE and to secure an amendment to the ANP Unitization Resolution. The CNPE Unitization Resolution did not detail this point, determining that ANP must regulate the parameters of appropriation and apportionment of a shared reservoir production in an open area, before the UA enters into force. Thus, CNPE allows ANP to add further detail to Chapter 5 of the ANP Unitization Resolution, which dealt with this issue in a summarized way.

The CNPE Unitization Resolution established that the Brazilian Government will be creditor or debtor of the eventual balance amount, when the hiring of an open area occurs before the payment of the value resulting in the difference between the dispending and recognized costs, and the oil and gas produced and settled by the parties to the UA (the Brazilian Government and the owner of E&P rights of the contract area).

Regarding the costs that the Brazilian Government has not recognized, the future owner of E&P rights must negotiate with the owner of E&P rights of the contract area, following the best practices of the petroleum industry. According to the CNPE Unitization Resolution, the future owner of E&P rights of the open area will not subrogate the Brazilian Government's rights and prerogatives.

The recognized costs and the Brazilian Government revenue obtained by its portion in a shared reservoir must be updated monetarily by the Brazilian economical index IGP-M,⁷⁴ or another index that replaces it. The CNPE Unitization Resolution prevents the return of untaxed capital from the original investment.

Before the UA's entry into force, CNPE determines that royalties must be charged from the oil and gas production of the open area in a shared reservoir. The royalties' rate will be the rate established for the area under the E&P agreement. Special Participation, a particular form of state take in Brazil, also must be charged in the case of a concession agreement.

Expenditures identified as relating to research and development will not be charged against production from the open area.

The amended ANP Unitization Resolution

The ANP Unitization Resolution is structured with a preamble and 12 chapters, dealing with the object; definitions; communications; specific requirements for the submission of the three types of agreements: conventional UA, UA involving open areas, and UP; access to data and information; redetermination process; government take; local content; technical report and general provisions.

The preamble sets the Resolution under constitutional principles and rules that meet the national development objective of the Federative Republic of Brazil. Once conducted in a balanced manner, it shall result in

72 Brasil Energia Petróleo, No 413, abril 2015. <http://brasilenergiaog.editorabrasilenergia.com/cadun/login?url_retorno=/news/governo/regulacao/2015/03/impasse- vista-449915.html> accessed 19 September 2017.

73 Felipe Botelho Tavares; Luciano Losekann; e Yanna Clara, 'Desafios Econômicos de Processos de Unitização no Pré-Sal' (2016) <<https://infopetro.wordpress.com/2016/06/20/desafios-economicos-de-processos-de-unitizacao-no-pre-sal/>> accessed 20 September 2017.

74 Market General Price Index calculated by the Fundação Getúlio Vargas (FGV). For more information <<http://portalibre.fgv.br/main.jsp?lumChannelId=402880811D8E34B9011D92B6B6420E96>> accessed 21 September 2017.

the rational, conservative and environmentally sustainable use of Brazilian energy resources, especially non-renewable ones. The amendment to the ANP Unitization Resolution has added to the preamble a reference to CNPE guidelines concerning unitization and local content.

The objective of the Resolution recited in Chapter 1, and establishes that the unitization procedure must be adopted upon identification that a reservoir extends beyond the limits of a granted block, under any of a concession, production sharing agreement or onerous assignment agreement regime.

Chapter 2 presents the definitions, which, for clear understanding of the regulation, must be added to those listed in the Petroleum Law, the Pre-salt Law and in the E&P agreements. For the purposes of this study, the definition of ‘the open area’ stands out namely: any area that is not granted by a concession, production sharing or onerous assignment agreement. The amendment to the Resolution added the concept of ‘effective date’ to define the exact date when the UA will enter in force: the first day of the subsequent month after the unit operator has received notice of the UA’s approval by ANP.

Chapter 3 covers the rules upon which the operator shall communicate the reservoir extension and the procedures for preparing the UA and the UP. Following the CNPE guidelines, the amendment of the ANP Unitization Resolution established that the operator must inform ANP as soon as it identifies the possibility of a shared reservoir, changing the previous provision, which required notification in the period of 10 days after the confirmation of a shared reservoir presence. In addition, the mere possibility of extension of a shared reservoir beyond the border of the area under the E&P agreement is reason enough to compel the notification of extension, unlike the previous rule, which required verification of the extension. This chapter also gives ANP the power and the duty to notify the parties whenever it itself identifies a shared reservoir. The same chapter outlines the hypotheses for negotiations of the UA and the UP and ratifies the representation of the Brazilian Government by either ANP or Pré-Sal Petróleo, as appropriate, whenever the unitization involves an open area.

According to Chapter 3, the parties have the possibility to sign a Pre-UA when joint appraisal operations are required for the shared reservoir (note that, by definition, the shared reservoir could be identified before the parties declare commerciality). This chapter also provides for ANP to establish: the deadline for submission of the UA and the shared reservoir development plan, the obligation of the parties to keep ANP updated quarterly about the negotiations, and suspension of share reservoir development and production until the UA has been approved, except as otherwise authorized by ANP, and in accordance with the conditions laid down by ANP.

A very important provision contained in Chapter 3 establishes that the deadline for the presentation of the development plan of the shared reservoir should coincide with the date expected for the signing of the UA. In this case, the rule established in the ANP Unitization Resolution prevails over the general rule that the deadline of the submission of the development plan for a certain reservoir is 180 days after the declaration of commerciality.

The generic rules concerning the UA’s contents are set out in Chapter 4 of the ANP Unitization Resolution. They require certain minimum information to be present in the UA, the possibility to include more than one shared reservoir in the same UA, the calculation criteria for the participation of each holder of E&P rights, the rules about UA terms and provision for divisible and indivisible obligations.

Chapter 5 contains the most polemic aspect of the ANP Unitization Resolution, dealing with the procedure for the submission of UAs involving open areas. As this chapter was subject to numerous changes brought by the amendment to the ANP Unitization Resolution, its provisions will be analysed in a separate section.

The UP,⁷⁵ a procedure created by the ANP Unitization Resolution, is regulated in Chapter 6. It deals with cases in which the shared reservoir extends into areas under different E&P agreements, but whose owner of

75 For more information about UP: Luciana Palmeira Braga and Carolina R L Fonseca, ‘A Regulamentação da ANP para Exploração Conjunta de Reservatórios’ (Rio Oil & Gas Conference, Rio de Janeiro 2016). <http://www99.ibp.org.br/events/2016/rioil2016/pdfs/rev/rioil2016_1385_ro_g_2016_texto_final_12_08.pdf> accessed 17 January 2017.

E&P rights is the same. Based on the very doctrinal definition of unitization, it could be argued that the UP ('... instrument signed after the declaration of commerciality that formalizes the allocation of the shared reservoir production extending into areas under different agreements and whose E&P rights belong to the same company or consortium of identical composition and with the same percentage of participation'.⁷⁶) is meaningless, since in a reservoir shared by the same company or consortium, it is clear that production would be unified, avoiding predatory exploitation beforehand.

We must remember, however, that since the launch of a new upstream regulatory framework,⁷⁷ Brazil has adopted at least three E&P fiscal regimes with their own and different characteristics. Because of the coexistence of these three regimes, it has become quite common to see unitizations involving blocks arising from agreements governed by different E&P regimes, regardless of their single or multiple ownership. Thus, far from being negligible, the UP ensures:

- a. The compatibility of legal and contractual parameters (local content, government take and cost oil) of adjacent areas that share a reservoir and are subject to different E&P fiscal regimes.
- b. The conciliation of contractual parameters of adjacent areas that share a reservoir and are subject to the same E&P fiscal regime, yet coming from different bidding rounds and, therefore, subject to conflicting contractual regulations.⁷⁸

Chapter 7 sets out the obligation of the parties to exchange available data and information on the shared reservoir, regardless of ANP's approval, if such data are necessary for the definition of participation.

The rights guaranteed to the parties by other ANP Resolutions dealing with this subject and by the corresponding E&P agreements are kept. In this chapter, it is also ratified that ANP Resolution No 11 of 2011 considers that the data and information about open areas shall be regarded as public.

Chapter 8 regulates the redetermination process, allowing ANP to require its performance where it is justified.

The rules about government takes are set out in Chapter 9. As they are divisible obligations, their payment must comply with contractual rules governing the areas under the E&P agreement in which the shared reservoir sits. There is no retroactivity in relation to the government takes in case of redetermination processes. For open areas, the unit operator must pay the Brazilian Government the take and later deduct it from the oil and natural gas share due to the Brazilian Government.

Chapter 10 provides the general criteria for determining the percentage of local content to be observed in the exploratory and production phases of shared reservoirs. In the exploratory phase, it must comply with the original local content percentage for each contract area. In the development of production, the local content requirement shall be calculated based on the weighted average between the original volumes of oil equivalent in each area and the original percentage of the local content. In any case, the detailed rules for definition, verification and oversight of the local content of the activities subject to the unitization process are set out in specific regulations issued by ANP.⁷⁹ The CNPE guidelines that prevent the UA involving open areas create additional commitments for the areas under an E&P agreement and must be also observed (CNPE Resolution No 7/2017).

The reference to the arbitration report in the sole paragraph of the revoked Article 27 of Petroleum Law, based on which ANP must determine equitable ownership of rights and obligations by unit parts in the

76 ANP Unitization Resolution, art 2, VII.

77 Braga and Szklo (n 3).

78 David, Lopes and Braga (n 58).

79 For more information about local content rules: Borges and others, 'Windfall Profits Arising from the Subadditivity of Costs After Unitization and Compliance with Minimum Local Content Requirements in Brazilian Deep-Water Offshore Oil Fields' (2014) 7 *Journal of World Energy Law and Business* 390.

absence of voluntary UA, caused doctrinal controversy while it was in force.⁸⁰ The Pre-salt Law ended this misunderstanding by prescribing, in its Article 40, that ANP should decide, based on a technical report, and in the absence of an agreement between the parties (that is, no voluntary UA), how the rights and obligations relative to the shared reservoir should be appropriated, notifying the parties to sign the UA on these bases. The rules about the requesting and elaboration of the technical report are set out in Chapter 11.

Before ANP's decision, the parties must submit, within 60 days, a petition describing the points of divergence and proposed solutions, in addition to the necessary data, information and interpretations in order to back up ANP's technical report, which may, at the discretion of ANP, be prepared by a third party paid by the parties who hold exploration and production rights over the area under the E&P agreements.

Chapter 12 deals with general provisions. As settled in the Pre-salt Law, the ANP Unitization Resolution also states that the refusal to sign the UA after ANP has established—based on a technical report—the way in which the rights and obligations should be appropriated by the unit parts shall imply the termination of the E&P agreement by the party which refused to sign it.

The same chapter sets up the term of 180 days, counting from the identification of a shared reservoir, for companies or consortia of identical composition to forward their UPs, whenever shared reservoirs are in the production phase. It also determines that the conducts of E&P rights holders that oppose the ANP Unitization Resolution shall be penalized in accordance with the applicable law. Finally, the provision that determined that ANP would carry out its competences before the Pré-Sal Petróleo was created was revoked, since the state company was created by Decree No 8605/2013.

Provisions about UAs involving open areas

As determined by the Pre-salt Law,⁸¹ whenever a reservoir extends into an open area, in order to continue with the E&P activities, the parties must sign a UA with the Brazilian Government, represented by Pré-Sal Petróleo if the open area is located in the Pre-salt Polygon, or by ANP if the open area is outside the Pre-salt Polygon.

According to the previous wording of the ANP Unitization Resolution, the UA would be negotiated considering that the private parties would bear all the investments and the Brazilian Government would reimburse them with hydrocarbons after the start of production, in a proportion based on the respective participations and the period when the Brazilian Government, represented by Pré-Sal Petróleo or ANP, was directly involved in the UA, and up to a limit of 20 per cent of the monthly production of the shared reservoir. However, such constraints could render some projects unfeasible, as suggested by Tavares and others.⁸² In order to resolve such issues, Chapter 5 of the ANP Unitization Resolution was restructured by Resolution No 698 of 2017, with the addition and amendment of some rules. In addition, the chapter detailed the rules for the equalization between the volume of oil and natural gas produced, and the expenses incurred by E&P rights holders. Those important additions and amendments will be discussed in the following section.

When the possibility of a shared reservoir involving an open area is identified, the owners of E&P rights must submit to ANP a preliminary proposal of joint appraisal of the extension, based on the available technical data. ANP then has 180 days to inform the parties how the appraisal will be carried out. ANP can carry

80 For more information about the doctrinal controversy Juliana Cardoso de Lima and Marilda Rosado de Sá Riberio (2012) *Unitização e Desafios*. <<http://www.e-publicacoes.uerj.br/index.php/rbdp/article/view/5783>> accessed 17 January 2017.

81 See the text of the arts 36 and 37, with our highlights:

'art 36. The government, represented by the public entity referred to in the first paragraph of art 8 (n 4) and based on the appraisal carried out by ANP, will sign a unitization agreement whenever the reservoirs sit in the Pre-salt and the strategic areas extend to areas which are not granted, whose terms and conditions thereof will, thus, bind the future concessionaire or contractor under the production share regime'.

'art 37. After due appraisals, the government, represented by ANP, will sign a unitization agreement with interested parties whenever the deposit is not located in either the Pre-salt or strategic areas and extends into an open area, whose terms and conditions thereof will bind the future concessionaire' (Emphasis added).

82 Tavares and others (n 73).

out the shared reservoir appraisal with the parties and can also hire Petrobras to perform this activity. Considering the strategic importance of Pre-salt, it is likely that Pré-Sal Petróleo will join the private parties in the drafting of this preliminary proposal of joint appraisal of the extension. In the Libra Project, the first Brazilian PSA, Pré-Sal Petróleo, on one side, as representatives of the Brazilian Government with regard to the open area, and the consortia formed by Petrobras, Shell, Total, China National Petroleum Corporation (CNPC) and China National Offshore Oil Corporation (CNOOC) (contractors) and Pré-Sal Petróleo (manager of the PSA), on the other, in relation to the Libra Field, are evaluating a possibility of unitization involving the open area together, based on a Pre-UA signed by them.

While the open area is not contracted, the E&P rights owner of the area under the E&P agreement must choose one of these two options: (i) suspension of the contractual term of the E&P agreement until the open area is contracted or (ii) continuation of the activities in the shared reservoir, since authorized by ANP and under the conditions established by ANP. Choosing the second option, the unit operator will be the same for the area under the E&P agreement. The ANP Unitization Resolution also says that when there is more than one area under the E&P agreement, the parties can choose the operator. After the contracting of the open area, the parties can freely define the operator in the UA.

If the production of the shared reservoir starts before the UA comes into force, the owners of E&P rights of the area under an E&P agreement will have full ownership of the petroleum production of the shared reservoir. In order to monetize the shared reservoir production, the parties must use the reference price of the month of production defined by ANP. The same rule is valid for extended well tests.

Before the UA comes into force, the costs incurred by the owners of E&P rights of the area under E&P agreement may be reimbursed only if the declaration of commerciality is submitted for at least one discovery in the shared reservoir and up to the limit of the Brazilian Government's stake in the production. The owners of the E&P rights must report the cost incurred separately, along with the government take and the monetized production. The debtor must pay the balance resulting from the difference between the revenue and costs. If the Brazilian Government is in debt, the payment must be deducted from the amount to which it is entitled in the production of the shared reservoir, calculated using the reference price of the month of payment. The Brazilian Government will not reimburse: the signature bonus, the costs related to the minimum exploratory programme and the cost of activities that have not produced technical data about the shared reservoir.

If the production of the shared reservoir starts before the hiring of the open area and after the UA comes into force, monetization of the entire volume of petroleum production of the shared reservoir must be apportioned between the private parties and the Brazilian Government, based on the participation proportion, the UA's clauses, supplementary documents, and a second proportion, related exclusively to production costs and investments related to the production development stage. This second proportion is based on the ratio of the volume of hydrocarbons produced up to the signing of the new PSA and the total recovery foreseen under the development plan of the shared reservoir.

This second proportion has the aim of limiting the reimbursement by the Brazilian Government to the time when it actually appropriated a portion of total production.⁸³ According to the ANP Unitization Resolution, the difference between the total expenses incurred by the E&P rights holders, with the costs of production and investments of the production development stage, and the amount actually reimbursed by the Brazilian Government, shall be negotiated between the holder of E&P rights and the future E&P rights owner of the new PSA.⁸⁴

The ANP Unitization Resolution does not clarify (and this clarification certainly is not in its scope) whether the costs to be negotiated between old and new E&P rights holders would be recoverable as cost oil in the future PSA. However, analysing Libra's PSA content, it seems that there is no contractual prohibition to such recovery.

83 See ANP Unitization Resolution art 17, s 2°.

84 *ibid*, s 6°.

The E&P regime to be adopted in the open areas is independent of the current regime for adjacent areas, as settled in the Pre-salt Law. The local content commitments and the operator for the open area must be the same for the area under the E&P agreement while there is no bidding round.

The future owner of open area E&P rights will be required to comply with the provisions of the UA signed by Pré-Sal Petróleo or ANP, reproducing the prescription of Pre-salt Law. Nevertheless, after the contracting of the open area, the parties, including the owner of the E&P rights of the former open area, can submit any adjustments to the UA for ANP's approval.

After the start of shared reservoir production, the Brazilian Government will pay the development and the production costs and investments in the proportion of its participation, since the UA is in force. This payment will be proportional to the ratio between the volume of hydrocarbons produced up to the hiring of the open area and the total recovery estimated in the development plan. The Brazilian Government will not make any disbursement, but will pay the cost and investments using its share of the hydrocarbons produced, considering the reference prices of the production month and of the payment month, all according to the Brazilian regulation, in order to carry out the monetary restatement of the costs and of the Brazilian Government's revenue.

The Brazilian Government will not reimburse the costs and the investments already incurred by the parties when the production has started without ANP's approval. However, the Brazilian Government will be reimbursed of its portion in the shared reservoir production.

As soon as the open area is contracted, it will need a UA amendment, which must indicate the costs that the Brazilian Government has not reimbursed yet.

An amendment in the ANP Unitization Resolution revoked the provision which settled a limit of 20 per cent of shared reservoir monthly production as a cap for the Brazilian Government's monthly reimbursement. Also, it revoked the provisions that prevent the Brazilian Government from paying the exploratory activities costs, and that require a previous notification of the extension and the signature of a Pre-UA as conditions for reimbursement.

Remarkable changes

The enactment of the CNPE Guidelines and the amendment of the ANP Unitization Resolution clarify many uncertainties about unitization involving open areas in Brazil. This section will analyse the most relevant changes.

The possibility of a reservoir extends to an open area

The CNPE Unitization Resolution has changed the moment when the unitization process starts, requiring ANP to be notified about the possibility of a shared reservoir involving an open area. The ANP Unitization Resolution incorporated this guideline for all categories of unitization.

Considering that open area resources must be managed by Brazilian Government representatives, it is reasonable that the Government also carries out the appraisal of this area in order to evaluate if there is an extension or not, and helping to define its limits. Thus, this provision changes the start of the unitization process, and legitimizes the participation of Pré-Sal Petróleo or ANP, where appropriate, in the appraisal of the shared reservoir. Also, the sooner the Brazilian Government knows about the extension, the sooner the open area will be offered.

Government carried interest

The compulsory carried interest of the Brazilian Government in UAs involving open areas, as settled in the first version of the ANP Unitization Regulation, has given rise to a lot of discussion. As the amendment to the ANP Unitization Regulation gave the parties the option for suspension of the contractual term, this

debate is apparently closed. Now it is clear that it is not an obligation imposed upon the parties of the area under the E&P agreement, but only an option.

It is also worth recalling that the general rule stated in the Pre-salt Law says that the development and production of the reservoir shall be suspended until the UA has been approved by ANP. If the parties choose to continue operations, they must follow the defined conditions established in the ANP Unitization Resolution.

Costs reimbursement

The rules about costs reimbursement were changed significantly. The former ANP Unitization Regulation prevented the payment of the cost of exploratory activities, except those related to appraisal activities. From now on, the Brazilian Government will not reimburse the signature bonus, the costs related to the minimum exploratory programme, and those costs that have not produced technical data about the shared reservoir.

Another change refers to the conditions required to receive a reimbursement. Before, ANP required to be notified of the existence of the shared reservoir and the signature of a Pre-UA or UA was required. The amended ANP Unitization Resolution simply requires a declaration of commerciality of, at least, one discovery in the shared reservoir for the cost recovery before UA signature. After the UA is in force, there are no conditions imposed for the reimbursement.

The limit of recoverable costs is another relevant change. A limit of 20 per cent of the monthly production of the shared reservoir has been imposed. In the view of Bonolo and Silva,⁸⁵ if the investment volume is huge, adopting this limit, Brazilian Government reimbursement could take many years. The amended ANP Unitization Resolution establishes that, before the UA enters into force, the Brazilian Government may use its entire participation from the previous shared reservoir production to pay the costs. After the UA enter in force, there is no limit set out. Furthermore, according to the CNPE guidelines, the Brazilian Government may remain a creditor or a debtor after the contracting of the open area. In the case of the Brazilian Government being in debt, it is not so clear how it will pay. For the open areas granted under a PSA, a discount in the Brazilian Government's share of profit oil could be a possibility.

Another important addition refers to the monetary update provisions. This was required by the companies involved in UA negotiations and Pré-Sal Petróleo. The CNPE guidelines pointed out the Brazilian index that must be adopted—the FGV IGP-M. Also, the ANP Unitization Resolution allowed use of the reference price⁸⁶ of the payment month in order to monetize the Brazilian Government portion in the shared reservoir production.

Operation in the unit area involving an open area

The unit operator for a UA involving an open area was another controversial issue. Until its amendment, the Pre-salt Law defined 'Operator' as Petrobras. Thus, a literal (and less good) interpretation of the provision, could lead to the understanding that only Petrobras could be the operator in the unitized areas in the Pre-salt Polygon. The amendment to the Pre-salt Law that ceased with Petrobras' exclusive operation and with its mandatory participation in all PSAs inside the Pre-salt Polygon⁸⁷ led to a change in the definition of the term 'Operator'. The amended ANP Unitization Resolution made this issue even clearer, determining that the operator for the UA involving an open area will be the same as the operator of the area under the E&P

85 Daniel Dellamora Bonolo and Carlos Eduardo Vieira da Silva, 'Unitização Envolvendo Área não Contratada: Comparação entre Modelos Contratuais' (Rio Oil & Gas Conference, Rio de Janeiro 2016).

86 The CNPE published guidelines determining ANP to change the calculation methodology for the reference price. For more information <http://www.mme.gov.br/documents/10584/4489543/Resolu%C3%A7%C3%A3o_CNPE+5_2017_PRP.pdf/dd81aecc-40c5-493d-aa01-060738be2667> accessed 21 September 2017.

87 However, the Federal Law No 13.365/2016, art 4º, ensure to Petrobras the preemptive right to be operator in the blocks that will be offered under PSA <http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2016/lei/L13365.htm> accessed 30 January 2017

agreement. Whenever there is more than one area under an E&P agreement, the parties must choose between the operators.

Royalties rate in the open area

The Unitization Resolution determines that the open area government take must be paid by the unit operator, but does not provide further detail. Considering that the royalty rate in Brazil can change depending of the regime adopted, a doubt about the royalty rate due in the open area arose during the negotiation of the Lula field UA.

Thus, ANP, by Board of Directors Resolution No 425 of 2015,⁸⁸ set the rate of the production sharing regime—15 per cent—for the open area located in the Pre-salt area. This decision is based on the provisions of the Pre-salt Law, which establish that: (i) the areas located in the Pre-salt area shall be granted upon the signature of production sharing agreements; (ii) a royalty rate of 15 per cent shall be charged over the production value and (iii) the UA involving open areas shall bind the future holder of E&P rights in this area.

Following the same reasoning, the CNPE guidelines clarify this issue. Before the UA comes into force, for the entire production, the royalty must be charged at the same rate established for the area under the E&P agreement. The special participation will also be charged under the same conditions. CNPE also makes it clear that the expenditures related to R&D will not be charged.

5. CONCLUSION

The unitization process is challenging *per se* for technical, legal and commercial reasons. This process is even more complex in Brazil because, in addition to having three different fiscal regimes, there is the obligation of the Brazilian Government to enter into a UA involving an open area.

Considering the geological structure of Pre-salt reservoirs, many unitization cases will occur in this area involving open areas. Pré-Sal Petróleo has already signed four UAs and another five are under negotiation.⁸⁹ Taking into account the controversial issues that have arisen from this experience, CNPE and ANP have launched new rules aiming to address these concerns. It must await the next negotiations under this new regulatory framework to see if the published rules contribute to the unitization process's negotiation and truly facilitate the successful contracting of an open area. A well-made regulation about unitization is important to attract investments in the short term, especially in the Second Bidding Round under the PSA.

It is important to highlight that, according to the Federal Law No 12.858 of 2013, the revenues that come from Pre-salt production—50 per cent of the royalties and the portion of PSA profit oil due to the Brazilian Government; and the portion of monetized production from the open area after the UA enters in force—are tied to basic education expenditures. In Brazil the level of annual public expenditure per student in primary and secondary education is less than half of the OECD countries' expenditure. Brazilian teachers earn less than half of the Organisation for Economic Co-operation and Development (OECD) average salary.⁹⁰ Pre-salt resources can play an important role in Brazilian social development.

The unitization process must not jeopardize the attractiveness of the Pre-salt area. Making UAs feasible is a major challenge for ANP, Pré-Sal Petróleo and the companies involved.

88 ANP Bord of Directors Resolution No 425/2015 <<http://200.179.25.211/NXT/gateway.dll?f=templates&fn=default.htm>> accessed 30 January 2017.

89 Pré-Sal Petróleo (n 4).

90 OECD. Country Note. Education at a Glance 2016. Brazil <http://www.keepeek.com/Digital-Asset-Management/oecd/education/education-at-a-glance-2016/brazil_eag-2016-44-en#.Wci-a8ZpGHs> accessed 25 September 2017.