

# ENVIRONMENTAL IMPACT ASSESSMENT “3D” OFFSHORE SEISMIC RECORD CAN\_100, CAN\_108 Y CAN\_114 AREAS ARGENTINA

## CHAPTER 2 – PRESENTATION

MARCH 2021

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## CHAPTER 2 - PRESENTATION

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*This chapter includes the objective and scope, as well as the regulatory framework and the methodological development of the 3D Offshore Seismic Record Environmental Impact Assessment of CAN\_100, CAN\_108 and CAN\_114 areas.*

### 1. PRESENTATION OF THE PROJECT

EQUINOR ARGENTINA AS SUCURSAL ARGENTINA (EQUINOR) plans to carry out seismic acquisition activities in blocks CAN\_100, CAN\_108 and CAN\_114 located offshore, in the North Argentine Basin (CAN) of the Argentine Continental Shelf.

The CAN\_108 and CAN\_114 blocks shall be explored according to the permits granted by Resolutions 691 and 702 of 2019, from the former Secretary of the Government of Energy (now the Secretary of Energy, under the Ministry of Production) to EQUINOR ARGENTINA AS SUCURSAL ARGENTINA, and YPF SA respectively, within the framework of the Offshore International Public Tender No. 1. As for Resolution 55/2020 of the Ministry of Energy, the transfer of 50% of the ownership of YPF S.A. of the exploration permit granted on CAN\_100 was authorized in favor of EQUINOR ARGENTINA B.V., EQUINOR ARGENTINA AS SUCURSAL ARGENTINA <sup>1</sup>.

The Offshore 3D Seismic Record involves the acquisition of data from an area of approximately 6,245 km<sup>2</sup> for CAN\_100 and 108 areas together, and around 3,443 km<sup>2</sup> for CAN\_114. The project is located more than 300 km offshore from the nearest coastal town (Mar del Plata, in the Province of Buenos Aires).

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<sup>1</sup> EQUINOR ARGENTINA B.V. SUCURSAL ARGENTINA is part of the same group as EQUINOR ARGENTINA AS SUCURSAL ARGENTINA.

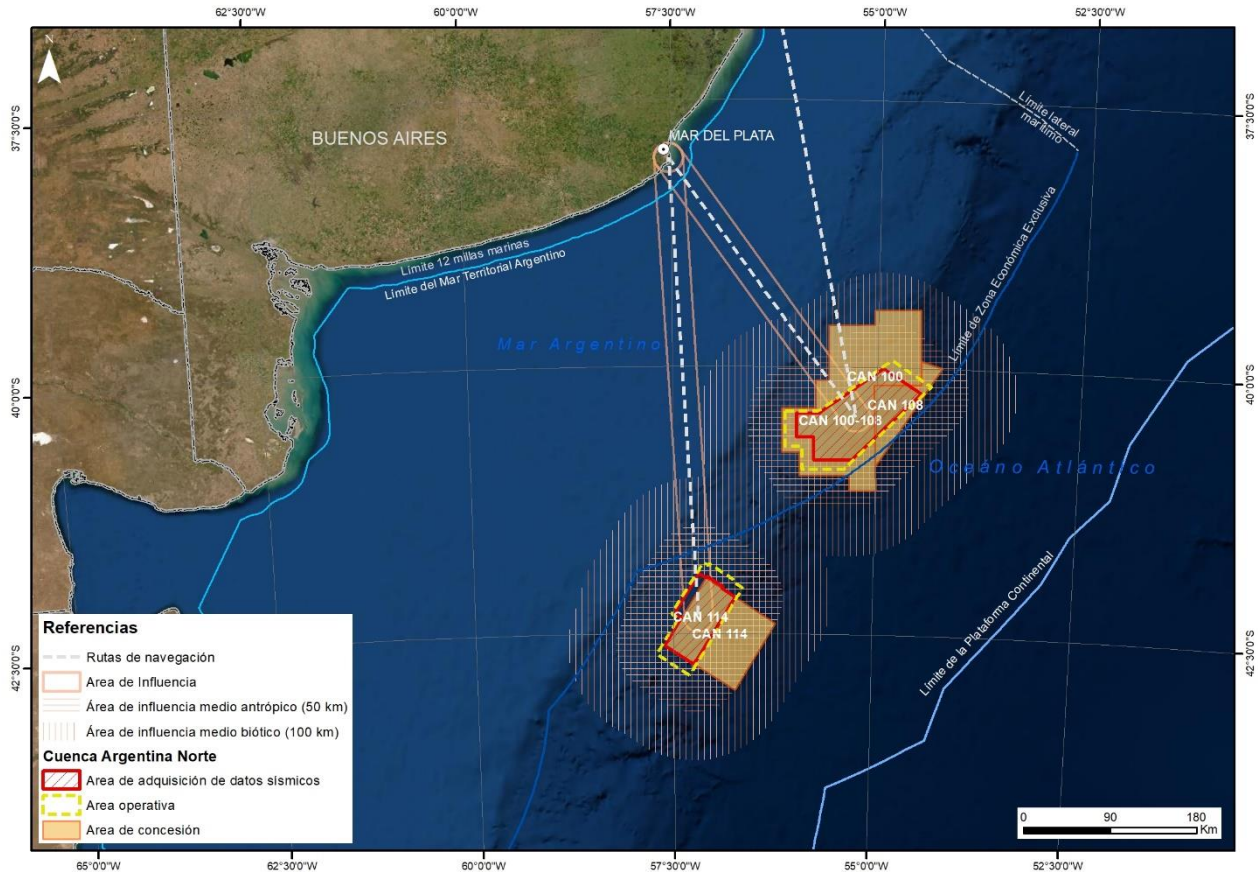


Figure 1. Geographical location of CAN\_100-108 and CAN\_114 Areas.

**(Map)**

- |                                       |                                 |
|---------------------------------------|---------------------------------|
| Límite 12 millas marinas:             | 12 Nautical-Mile Limit          |
| Límite del mar territorial argentino: | Argentine Territorial Sea Limit |
| Límite lateral marítimo:              | Maritime Lateral Limit          |
| Límite de Zona Económica Exclusiva:   | Economic Exclusive Zone Limit   |
| Límite de la Plataforma continental:  | Continental Shelf Limit         |

References/Navigation Routes/Area of Influence/Area of Influence- Anthropoc environment (50 Km)/ Area of Influence – Biotic Environment (100 Km)/North Argentine Basin/ Seismic Data Acquisition Area/Operative Area/License Area

**2. BACKGROUND AND JUSTIFICATION FOR THE PROJECT**

**2.1 OFFSHORE INTERNATIONAL PUBLIC BID**

In November 2018, the former Secretary of Government for Energy made a public call for the tender of 38 offshore areas in the basins of the Argentine continental shelf to search for hydrocarbons, within the framework of the first International Offshore Public Bid.

In order to increase investment and generate new hydrocarbon resources for Argentina, said bid was called to explore in three basins: Austral (14,200km<sup>2</sup> up to 100 meters deep), West Malvinas (86,400 km<sup>2</sup>, from 100 to 600 meters deep) and North Argentina (100,200km<sup>2</sup> from 200 to 1,300 meters and from 1,200 to 4,000 meters in ultra-deep waters)<sup>2</sup>.

<sup>2</sup> 18 Areas were granted in search for gas and oil in the Argentine Sea for 724 million dollars, 2019: [www.argentina.gob.ar](http://www.argentina.gob.ar). Retrieved from: <https://www.argentina.gob.ar/noticias/se-adjudicaron-18-areas-para>

As a result, 18 areas were granted, amounting to 94,800 km, which represents approximately 47% of the total area tendered.

The grantees have a maximum period of 13 years to carry out the exploration activities of the deepest blocks and 11 years for the areas closest to the coast. These activities include the drilling of at least 2 wells and, during the course of these exploration permits, the companies may request the authorization to exploit these areas for a period of 35 years.

The areas granted to EQUINOR were the following:

- Argentina North Basin (CAN): CAN\_102 (YPF and EQUINOR), CAN\_108 and CAN\_114 (EQUINOR and YPF).
- West Malvinas Basin (MLO): MLO 121.
- Austral/Southern Basin (AUS): AUS 105 Area and AUS 106 Area.

## 2.2 RESOLUTION 55/2020 OF THE MINISTRY OF ENERGY

Through Resolution 196/19 of the former Ministry of Energy, the April 2006 association agreement for the exploration and eventual exploitation of the “E-1” area signed between ENARSA, YPF, PETROBRAS ARGENTINA -currently PAMPA ENERGÍA- and PETROURUGUAY, turns into a hydrocarbon exploration permit over CAN\_100 Area in favor of YPF under the terms of Law 17,319.

Subsequently, Resolution 55/2020 of the Ministry of Energy authorized the transfer of 50% of the exploration permit granted to YPF SA over CAN\_100 Area in favor of EQUINOR ARGENTINA BV SUCURSAL ARGENTINA.

The exploration term is made up of two periods of four years each and the possibility of a five-year extension.

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buscar-gas-y-petroleo-en-el-mar-argentino-por-724-millones-de in May 2020.

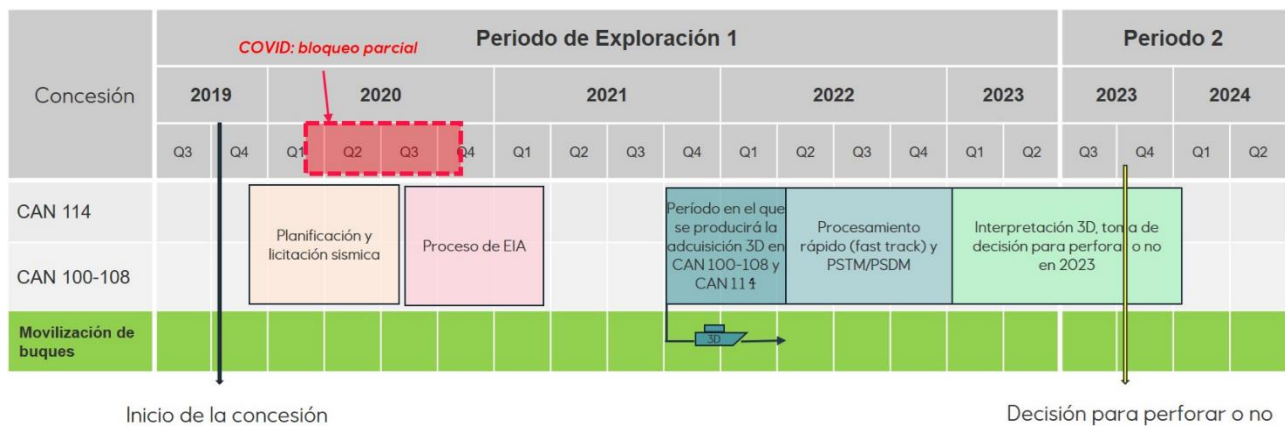
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### 2.3 EXPLORATION OF CAN\_100, CAN\_108 AND CAN\_114 BLOCKS

Pursuant to the exploration permits granted by Resolutions 691/19, 702/19 and 55/19, EQUINOR plans to carry out 3D acquisition activities in CAN\_100, CAN\_108 and CAN\_114 blocks, as part of the following phases of the exploration project:

| Block   | Permit granting | Periods   |
|---------|-----------------|---|
| CAN_100 | April 11 2019   | 1st Exploration Period: year 1 to 4 (seismic data acquisition, processing and interpretation) |
|         |                 | 2nd exploration period: year 5 to 8 (1 exploration well)                                      |
|         |                 | 5-year extension: years 9 to 13 (to be defined)   |
| CAN_108 | November 1 2019 | 1st Exploration Period: year 1 to 4 (seismic data acquisition, processing and interpretation) |
|         |                 | 2nd exploration period: year 5 to 8 (1 exploration well)                                      |
|         |                 | 4-year extension: year 9 to 13 (to be defined)  |
| CAN_114 | November 8 2019 | 1st Exploration Period: year 1 to 4 (seismic data acquisition, processing and interpretation) |
|         |                 | 2nd exploration period: year 5 to 8 (1 exploration well))                                     |
|         |                 | 4-year extension: year 9 to 13 (to be defined)  |

The first exploration period where the 3D seismic acquisition tasks are expected to be carried out comprises the following stages:



**Diagram translation**  
**(From left to right)**  
 License/Exploration Period N°1/ Period N°2/ Covid: Partial lockdown/  
 Planning and Seismic Bidding process  
 EIA Procedure  
 3D Seismic Acquisition period of CAN100-108 and CAN114 Areas  
 Fast Track and PSTM/PSDM  
 3D Interpretation. Decision-making process of whether or not to drill in 2023  
 2019 Start of License  
 2023 Decision-making process of whether or not to drill in 2023

## 2.4 PROJECT JUSTIFICATION

The Argentine sea is one of the largest spaces with potential for hydrocarbon resources at a global level. However, it is little explored compared to regions of similar magnitude and potential. Offshore production is concentrated in the Austral Basin and amounted, in 2019, to almost 24 million cubic meters per day (MMm<sup>3</sup>/ day) of natural gas, approximately 17% of national production, and about 11,400 barrels of oil per day ( bpd), just a little more than 2% of the country's total crude extraction (Ministry of Energy, 2019)<sup>3</sup>. In order to ensure future production, continued investment in oil and gas exploration activities is necessary.

As an initial stage of the exploration in the areas CAN\_100, CAN\_108 and CAN\_114, a 3D seismic data survey is proposed for the areas of interest.

Seismic data provide detailed information on the geology of the subsurface that cannot be supplied by other geological and geophysical methods. Collecting this information is also essential to accurately outline known reserves and evaluate previously identified prospects. The purpose of the seismic survey is to facilitate the complete characterization of the possible hydrocarbon reserves identified in the assessment areas.

After its acquisition and processing, the seismic data shall be subjected to an interpretation process to identify the locations of the exploration wells, in accordance with the obligations of the concession contract. Once the geological structure has been identified, an exploration drilling can be carried out to confirm the presence of hydrocarbons and the thickness and pressure of the reservoir.

## 3. EQUINOR VISION

Equinor is an international energy company present in more than 30 countries and with around 21,000 employees, committed to developing oil, gas, wind and solar energy, in a safe and sustainable way.

It is aimed at turning natural resources into energy for people and progress for society. Equinor supports the Paris Climate Agreement and the United Nations Sustainable Development Goals.

At the same time, it recognizes that the world's energy systems must be profoundly transformed to drive de-carbonization, while guaranteeing universal access to affordable and clean energy. We know that global demand for oil has to decline, but even within the framework of the Paris Agreement, the world shall depend on oil for many years. That is why the company explores and produces oil and gas with the lowest possible emissions, replacing coal with gas and ambitiously investing in renewable energy.

## 4. AIM AND SCOPE OF THE ENVIRONMENTAL IMPACT ASSESSMENT

This report constitutes the Environmental Impact Study of the 3D Offshore Seismic Record in CAN\_100, CAN\_108 and CAN\_114 Areas.

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<sup>3</sup> Ministry of Energy, 2019. Energy Scenarios 2030. Synthesis Document. Retrieved from: [http://www.energia.gob.ar/contenidos/archivos/Reorganizacion/planeamiento/2019-11-14\\_SsPE-SGE\\_Documento\\_Escenarios\\_Energeticos\\_2030\\_ed2019\\_pub.pdf](http://www.energia.gob.ar/contenidos/archivos/Reorganizacion/planeamiento/2019-11-14_SsPE-SGE_Documento_Escenarios_Energeticos_2030_ed2019_pub.pdf) in May 2020.



The Environmental Impact Assessment (EIA) is aimed at identifying those environmental aspects of the project that are most significant for the environment and to provide the necessary environmental management measures to prevent, reduce, manage and even compensate for the potential effects that may be generated in the different stages. For this reason, it is essential to know the aspects of the project that can modify the environment, detail the characteristics of the natural and anthropic environment that define the project area and finally analyze their links, identifying potential effects.

The scope of the EIA includes the environmental evaluation of the seismic acquisition that includes: mobilization of the seismic vessel and the support vessels to the project area, the seismic campaign and the demobilization of the vessels once the survey has been carried out to navigate back to the boarding port.

## **5. REGULATORY FRAMEWORK AND METHODOLOGICAL APPROACH OF THE EIA**

The exploration shall be carried out within the Argentine Exclusive Economic Zone (EEZ) in the case of CAN\_100 and CAN\_108 areas, and outside the EEZ when referring to CAN\_114, but within waters superjacent to the Continental Shelf measured and registered before the Commission of the Continental Shelf in accordance with the International Law of the Sea, away from the strip of provincial jurisdiction and without interactions with the coastal provinces. The offshore project is subject to the national hydrocarbon and environmental regulatory framework with regard to exploration tasks, and also to navigation regulations and international maritime protection treaties and national environmental legislation given the location of the areas and their scope.

Law 23,968 refers to the continental shelf over which the Argentine Nation exerts sovereignty, and establishes that it comprises the bed and subsoil of the underwater areas that extend beyond its territorial sea and throughout the natural extension of its territory up to the outer edge of the continental margin, or up to a distance of 200 nautical miles measured from the baselines, in cases where the outer edge does not reach that distance. Regarding the exploration areas included in the present analysis, national jurisdiction extends over the continental shelf, even beyond 200 nautical miles, taking into account its geography and underwater geological formation on the coasts adjacent to the Argentine maritime coastline.<sup>4</sup>

In terms of hydrocarbon exploration and exploitation, as of the enactment of Law 26,197, and afterwards with Law 27,007 which amended Hydrocarbon Law N ° 17,319, the dispute regarding the dominance of the deposits located in the territorial sea has been clearly settled. The criterion of exclusive national jurisdiction in the Exclusive Economic Zone and the Continental Shelf has been confirmed, and the provincial authority has been limited to territorial waters up to 12 miles.

Given the characteristics of the offshore operation, the project shall be monitored by the Ministry of Energy, dependent on the Productive Development portfolio and its subordinate agencies, along with the Hydrocarbons Sub-secretariat regarding permits for exploration and associated work, in accordance with the Hydrocarbons Law.

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<sup>4</sup> It should be recalled that the continental shelf may extend up to 350 nautical miles from the baseline of the coast, in accordance with article 76 of CONVEMAR. The continental shelf may not extend beyond the 350 miles as from the baseline from which the territorial sea is measured. Also see: [https://www.un.org/Depts/los/clcs\\_new/submissions\\_files/arg25\\_rev/20170317\\_ARGREV\\_SUMREC\\_COM.pdf](https://www.un.org/Depts/los/clcs_new/submissions_files/arg25_rev/20170317_ARGREV_SUMREC_COM.pdf) y <http://www.plataformaargentina.gov.ar/publicación-libro-el-margen-continental-argentino>

Regarding the application of the Environmental Impact Assessment procedure, the Ministry of Environment and Sustainable Development (MAyDS) shall participate through its agencies, together with the Ministry of Energy, by virtue of Joint Resolution 3/19 which established a circuit of interaction between the energy and environment portfolios for the application of the Environmental Impact Assessment (EIA) procedure of the exploratory operations in waters and continental shelf, with an intervention of the environmental portfolio and subsequent monitoring and follow-up by the sectorial portfolio. The procedure designed for the approval of environmental studies also includes a sectoral intervention by the National Institute for Fisheries Research and Development (INIDEP), under the Ministry of Agriculture, Livestock and Fisheries.

Regarding navigation and the operation of offshore facilities, there is a set of agreements drawn up within the International Maritime Organization (IMO) to which the Argentine Republic is signatory. Many of them are expressly aimed at protecting the environment or maritime safety issues. The main agreements with environmental implications for the project are the following:

- International agreement to prevent pollution of seawater by hydrocarbons -OILPOL- approved by Law 21,353.
- Agreement on the Prevention of Marine Pollution by Dumping of Wastes and Other Substances, approved by Law 21,947.
- Convention on Safety of Human Life at Sea -SOLAS 74- approved by Law 22,079, the 1978 Protocol approved by Law 22,502 and its amendment approved by Law 23,706.
- International Convention on Intervention on the High Seas in Cases of Accidents that Cause Pollution by Hydrocarbons - approved by Law 23,456.
- International Agreement to Prevent Pollution from Ships, MARPOL 1973/78, its Annexed Protocols approved by Law 24,089.
- OPRC Agreement (International Agreement on Cooperation, Preparation and Fight Against Oil Pollution (Law 24,292).
- United Nations Convention on the Law of the Sea –CONVEMAR-, approved by Law 24,543.
- Protocol of 1992 that amends the International Convention on Civil Liability derived from Damage due to Hydrocarbon Pollution -CLC- (London-1969), approved by Law 25,137.
- Agreement on the Management of Ballast Water and Management of Bilge Sediments, approved by Law 27,011.

The United Nations Convention on the Law of the Sea (UNCLOS) constitutes the general framework for the regulation of all activities carried out in the Exclusive Economic Zone, thus serving as support for the security measures that are adopted in matters of navigation, pollution control and authorization of offshore operations. It is based on this founding international agreement that the Argentine Republic bases its jurisdiction on the Continental Shelf. Based on the forwarding criteria established in CONVEMAR and other international instruments, which recommend integrating the environmental study with the most consolidated and recent good practices in relation to offshore seismic activity, the good practices of the UK Joint Nature Conservation Commission (JNCC) April 2017 have been taken as a reference along with additional supporting guidelines<sup>5</sup>.

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<sup>5</sup> See JNCC “Guidelines for minimizing the risk of injury and disturbance to marine mammals from seismic surveys”, Aberdeen, UK. The guidelines were developed by the JNCC, in order to facilitate the integration of the considerations raised in the European Union Directives on the conservation of protected species and habitats, and implemented into British legislation (amendments of 2007 and 2009 to the regulations of 1994 on Natural Habitats and *Offshore Marine Conservation Regulations* de 2007, amended in 2009 and 2010)



On the other hand, the Navigation Law (Law 20,094) regulates all legal relationships originated in water navigation, covering ships and naval devices. The enforcement authority of this regulation is the Argentine Coast Guard (PNA), as expressed in Law 18,398 modified by Law 20,325, inasmuch as it establishes that it is in charge of the navigation security police service and the judicial security police service.

The PNA (Argentine Coast Guard) acts in matters related to the control of ships and naval devices, as well as in the issuance of regulations tending to prohibit the pollution of river, lake and maritime waters by hydrocarbons or other harmful or dangerous substances, and verify their compliance, among others. Likewise, it applies international conventions on the safety of navigation, goods and human life at sea.

The Navigation, Maritime, River and Lake Regime (REGINAVE) constitutes the central regulation of maritime, river and lake activity. The standards grouped in REGINAVE are supplemented with specific regulations issued by the highest authority of the PNA (Argentine Coast Guard) or by other technical agencies.

## **6. PROJECT CATEGORIZATION**

The National Directorate of Exploration and Production, dependent on the Ministry of Energy, pre-categorized the declared project as included in section II.A.1. "2D, 3D and 4D seismic acquisition operations", corresponding to the ORDINARY procedure, in the terms of article 1 of annex I of Resolution SE-SGAYDS N ° 3/19 (by IF-2020-16729484-APN-DNEP # MHA of Order No. 39 and NO-2020-35767406-APNDNEYYP # MDP of Order No. 218).

Subsequently, the Directorate for Environmental Impact Assessment and Environmental Risk Analysis under the Ministry of Environment and Sustainable Development through the CATEGORIZATION AND SCOPE REPORT OF THE "SEISMIC ACQUISITION CAMPAIGN OFFSHORE ARGENTINA; NORTH ARGENTINE BASIN (CAN 108, CAN 100 AND CAN 114 AREAS) "EX-2020-11258246- -APN-DNEP # MHA (IF-2020-43049058-APN-DEIAYARA # MAD of July 6, 2020), and in accordance with the terms of Annex II of Resolution SE-SGAYDS No. 3/2019, coincidentally considered the project as framed in category II.A.1. "2D, 3D and 4D seismic acquisition operations", corresponding therefore the processing of an ORDINARY ENVIRONMENTAL IMPACT ASSESSMENT PROCEDURE (through Note NO-2020-43129896-APN-DNEA # MAD of July 6, 2020).

Along with the aforementioned report IF-2020-43049058-APN-DEIAYARA # MAD requirements issued by the different departments have been received, with technical specifications to be addressed in the preparation of the Environmental Impact Assessment:

- Embedded file: NO-2020-36789285-APN-DPYGP # MPYT prepared by the Secretariat of Agriculture, Livestock and Fisheries of the Ministry of Agriculture, Livestock and Fisheries.
- Embedded file: IF-2020-36517858-APN-DNBI # MAD prepared by the National Biodiversity Directorate requested through NO-2020-34540231-APN-DNEA # MAD.
- Embedded file: IF-2020-35700481-APNDNGAAYEA # MAD prepared by the National Directorate for Environmental Management of Water and Aquatic Ecosystems.

## **7. REPORT ORGANIZATION**

The Environmental Impact Assessment considers the requirements established by the applicable regulations and the authorities involved at the national level. In particular, the guidelines set forth in Joint Resolution 3/2019 were followed, which presents two lists of projects in its Annex II, the present study corresponding to the II-A List of Projects Subject to an Ordinary Environmental Impact Assessment Procedure, and item II.A.1 as well. 2D, 3D and 4D Seismic Acquisition Operations.

The indicated Resolution sets forth, in its Annex IV, the structure and content of the Environmental Impact Studies for exploration projects associated with seismic acquisition activities, which have been considered for the preparation of this study. Likewise, the most recent guides have been taken into account as a reference, in particular the "Guide for the preparation of environmental impact studies" of the former Secretariat of Environment and Sustainable Development (2019), and the "Guide to Strengthen Public Participation and Evaluation of Social Impacts" (SAyDS, 2019) regarding the identification and consultation of key stakeholders.

The Environmental Impact Assessment is made up of 8 different chapters, whose brief descriptions are herein below displayed.

### **Chapter 1: Executive Summary**

It summarizes the fundamental technical information developed in the Environmental Impact Assessment.

### **Chapter 2: Presentation**

It constitutes the initial section of the report, thus establishing the objective and scope of the Environmental Impact Assessment and the project Justification. The regulatory framework and the methodological development of the evaluation are described and the data of the consulting firm responsible for preparing the EIA and its team of professionals are also presented.

### **Chapter 3: Legal and Institutional Framework**

This chapter corresponds to the analysis of the legal and institutional framework applicable to the project. Likewise, the environmental impact assessment regulations applicable to the contemplated activity framed within the Argentine Federal system are analyzed, as well as the hydrocarbon regulatory framework and the international maritime protection treaties to which the Argentine Republic has adhered, especially the Convention of the International Maritime Organization (IMO) on the Law of the Sea.

### **Chapter 4: Project Description**

The main purpose of this chapter is to provide sufficient information about the project to serve as a basis for the description and characterization of the receiving environment, as well as for the evaluation of environmental impacts.

## **Chapter 5: Environmental Baseline**

The fundamental objective of this chapter is to comprehensively evaluate the environment where the project shall be developed, for which the areas of influence of the project are first established. Then the physical, biological and anthropic aspects corresponding to the area of influence of the exploration zone are characterized, which shall allow to evaluate and quantify, in the following chapters, the potential environmental impacts derived from their activities. This chapter contains the identification and mapping, as well as the process of consultations carried out with the key stakeholders.

## **Chapter 6: Sound Modeling**

The development of the project implies the temporary affectation of some natural characteristics that the study areas present, the generation of noise that shall be produced during the seismic record is included among these changes.

For the purposes of the potential acoustic impact, a numerical modeling was carried out enabling the assessment of sound intensity loss by transmission depending on the conditions of speed of sound for different profiles of salinity and temperature of the water within the study area, as well as the depth and seabed characteristics.

This chapter explains the modeling carried out, describing the models used and the simulation parameters adopted, and presenting the results obtained in terms of the evolution of the sound attenuation with the distance to the source (airgun array).

## **Chapter 7: Environmental Impacts Assessment**

This chapter initially analyzes and sets up the environmental sensitivity of the seismic prospecting areas and the established areas of influence. Then, the aspects of the project that represent an impact on the environment are identified laying down the necessary environmental management measures to prevent, reduce, manage and even compensate for these effects. In this regard, based on all the information presented in the previous chapters, an evaluation of the main environmental impacts associated with the project is carried out. The most significant changes caused by the different actions and their consequences (environmental impacts) on the physical, biotic and anthropic environment are determined.

## **Chapter 8: Mitigation Measures and Environmental Management Plan**

This chapter contains the necessary environmental management measures to prevent, reduce and manage the negative effects of the project identified in the previous chapters, aimed at developing the project with the least possible negative impact on the environment and complying with the applicable environmental regulatory framework. It also includes the Environmental Management Plan as analyzed in the previous chapters, including programs and subprograms.

## **Disclosure Document**

The "Disclosure Document" that shall be useful for participatory instances is annexed to the Environmental Impact Assessment. It contains a synthesis of what was developed in the EIA.

## 8. PROJECT PROPOSER

### EQUINOR ARGENTINA AS SUCURSAL ARGENTINA

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 Legal Address: 458 Reconquista St., 14° Floor, Autonomous City of Buenos Aires (C1003ABJ)  
 Web Page: [www.equinor.com](http://www.equinor.com)

Equinor is a global energy company of Norwegian origin, supplying 170 million people with oil, gas and renewable energy on a daily basis. Some people still identify it by its former name, Statoil.

It is one of the most experienced offshore oil and gas operators in the world with more than 40 years of international experience and one of the largest producers of offshore wind energy. Its headquarters are located in Norway. Equinor entered Argentina in 2017 and opened its offices in Buenos Aires in 2018.

In addition to offshore exploration in Argentina, it is currently interested in four onshore licenses in the Vaca Muerta formation in the Province of Neuquén, while also participating in the Guañizuil 2A solar park in the province of San Juan.

Since its founding almost 50 years ago, it has conducted hundreds of surveys around the world. Since 2005, it has acquired more than half a dozen seismic surveys in South America, particularly offshore in Brazil, Nicaragua and Suriname. It always focuses on health, safety and the environment in the places where it operates and coexists with other industries or stakeholders affected by its operations, such as fisheries and local communities.

## 9. RESPONSIBLE FOR THE STUDY

### SERMAN & ASOCIADOS S.A.

Legal Address: Pico St. N° 1639/41/45, 5° Floor, Office D (C1429 EEC), Autonomous City of Buenos Aires, Argentine Republic.  
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 Web Page: [www.serman.com.ar](http://www.serman.com.ar)

The Company has certified the IRAM ISO 9001: 2015, IRAM ISO 14001: 2015 and OHSAS 18001: 2007 Standards.



**Serman & Asociados S.A. is registered in the National Registry: REGISTRO DE CONSULTORES EN EVALUACIÓN AMBIENTAL (REGISTRY OF CONSULTANTS IN ENVIRONMENTAL ASSESSMENT) (RNCEA). CERTIFICATE N°: 29 (see Annex I of this chapter).**

## 10. INTERDISCIPLINARY TEAM

Table 1. Professional Team

| FIRST AND LAST NAMES     | TITLE   | EXPERTISE/POSITION   | SIGNATURES |
|--------------------------|---|--|------------|
| Mariano Miculicich       | Environmental Engineer                        | Technical representative and Director of the Study (environmental management)  |            |
| Paula Nogueiras          | Bachelor's Degree in Environmental Management | Integral Coordination (general coordination, impact assessment and environmental management)                                       |            |
| María Sol García Cabrera | Bachelor's Degree in Biology                  | Expert in Biological Sciences ( biological component, mapping and information management ) (*)                                     |            |
| Natalia Luchetti         | Bachelor's Degree in Sociology                | Expert in Social Sciences ( Social, Economic and Cultural component and Communication and public participation)                    |            |
| Juan Rodrigo Walsh       | Environmental Law Lawyer                      | Environmental Lawyer (legal and institutional framework )  |            |
| Julio Cardini            | Bachelor's Degree in Physics                  | Hydroacoustics Expert (Acoustic impact)  |            |
| Florencia Brancolini     | PhD in Biology                                | Fisheries (characterization of nekton and fisheries) (**)  |            |
| Priscilla Minotti        | PhD in Biology                                | Biological Sciences. Expert in marine ecosystems (biological component, characterization of marine mammals, reptiles and seabirds) |            |
| Maribel Garea            | Oceanographer                                 | Expert in Oceanography (physical component)  |            |

(\*) For the development of cartography and geographic information management, we also had the support of Arch. Sofia Pasman, Expert in Geographic Information Systems, who works in the use, development and application of GIS in environmental aspects, water resources, risk studies and urban planning in master plans on a local and regional scale, among other projects.

(\*\*) For the characterization of nekton and fisheries. Dr. Claudio Baigún participated as Reviewer holding a Bachelor's degree on Biological Sciences and also a PhD in Biological Sciences of the University of Buenos Aires. He is currently Director of the Applied Fisheries Ecology Laboratory of the Institute for Environmental Research and Engineering, National University of San Martín, and is also Director of the Fish and Fisheries Conservation Program of Wetlands International in Latin America.



Annex I to this Chapter includes the records of registration as Individual Consultants in the National Registry of Consultants in Environmental Assessment in accordance with Resolution SAyDS No. 102/2019 of the professionals involved. This Annex also includes the background (curricula) of the professionals involved in the study and of the additional reviewers.