

*Mining Development Studies Series*

# Infrastructure Requirements for the Development of the Mining Sector

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## Executive Summary

The main objective of this report is to identify the infrastructure requirements necessary for the development of metalliferous and lithium mining in Argentina, considering the expansion of copper, lithium, gold, silver and uranium projects that, since 2020, have announced investments for more than US\$ 20 billion.

Furthermore, if the corresponding investments are made, exports will increase fourfold by 2030 and nearly sixfold by 2035, a process that would be significantly driven by the increase in the quantities of copper and lithium exported.

In order to meet these estimates, adequate infrastructure is key to the competitiveness of the mining sector, optimizing transportation, energy and logistics, and generating additional benefits for communities near mining areas, this report identifies needs in access roads (routes and paths), rail transport, energy supply (high voltage lines, gas pipelines) and export ports.

For a better understanding of the requirements in geographical terms, the document is divided into the following areas considering the mineralogy of each sector:

- NOA (Jujuy, Salta, Catamarca, Tucumán): Expansion of lithium projects in salt flats and potential copper production.
- Cuyo (Mendoza, San Juan, La Rioja): Great potential for copper and gold production
- Patagonia (Neuquén, Río Negro, Chubut, Santa Cruz, Tierra del Fuego): Main gold and silver producing region.
- Centro (Buenos Aires, Santa Fe, Córdoba, San Luis, Entre Ríos, Santiago del Estero): Key point for transportation and export with access to the Atlantic Ocean.

Finally, in terms of methodology, data was collected from national agencies, business chambers and mining companies. The main sources of information included:

- Consejo Federal de Inversiones.
- Compañía Administradora del Mercado Mayorista Eléctrico SA (CAMMESA).
- Trenes Argentinos de Carga.
- Plan de Infraestructura Federal (Unión Industrial Argentina - UIA, 2022).
- Cámara Argentina de Empresarios Mineros (CAEM).
- CAMYEN S.E.
- Requirements of operating and controlling companies of mining projects in advanced stages.

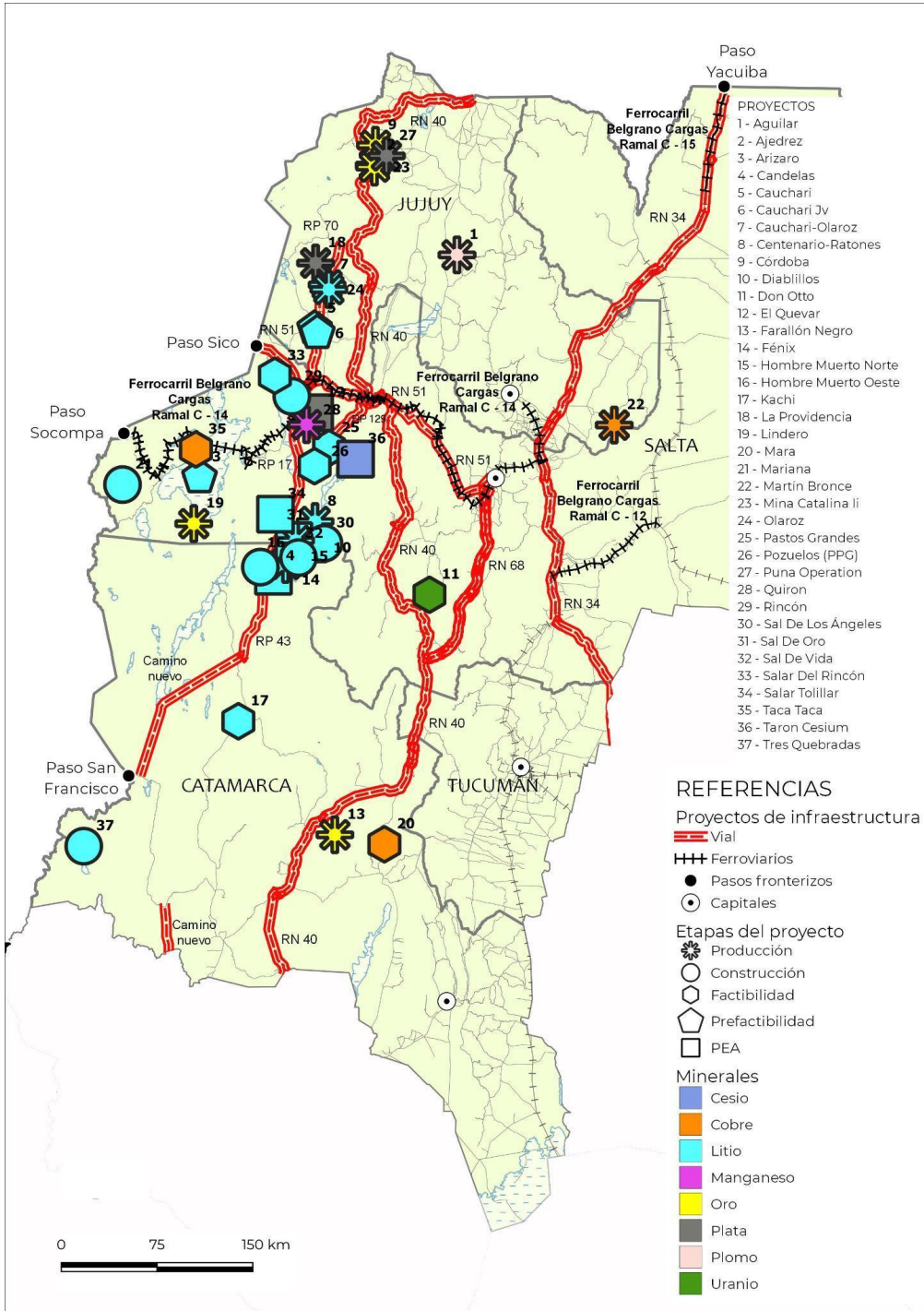
For an extension of the methodological definitions regarding the identification of the infrastructure requirements of the Argentine mining sector, see Methodological Annex.



# NOA Region

Provinces: Jujuy, Salta, Tucumán y Catamarca

## Road and Railway Requirements Map



# NOA Region

Provinces: Jujuy, Salta, Tucumán y Catamarca

## Identified Road Requirements

The following improvements have been identified for the road connection between the provinces of the region and the mining projects, in order to optimize regional and national transportation, reduce logistics costs and increase efficiency in the movement of mining products in the area.

### Salta

- Expansion to highway or improvement of National Route 34 along its entire route within the province.
- Paving of Provincial Route 51 from the town of San Antonio de los Cobres to Paso de Sico.
- Paving of Provincial Route 129 from its source at the intersection with Provincial Route 17 to the junction located to the north with Provincial Route 17 to the west and National Route 51 to the east.
- Paving of Provincial Route 17 from Salar del Hombre Muerto (border with Catamarca) to Salar de Pocitos.
- Paving of Provincial Route 27 from Salar de Pocitos to the intersection of National Route 51.

### Jujuy

- Expansion to highway or improvement of National Route 34, complementing the sections in Tucumán and Santiago del Estero.
- Paving of Provincial Route 70, improving the section from the intersection with National Route 51 and National Route 40 to Provincial Route 77.
- Paving of National Route 40 from the border with Salta to the junction with National Route 9.

### Catamarca

- Paving of Provincial Route 43 from Salar del Hombre Muerto to the department of Antofagasta de la Sierra.
- Paving of a new road (there is no information on the exact route) for a connection from the department of Antofagasta de la Sierra to National Route 60 (connection near Paso San Francisco).
- Paving of a new road (there is no information on the exact route) from National Route 60 towards National Route 76 to the border with La Rioja.

### Tucumán

- Expansion to highway or improvement of National Route 34 along its entire route within the province.



# NOA Region

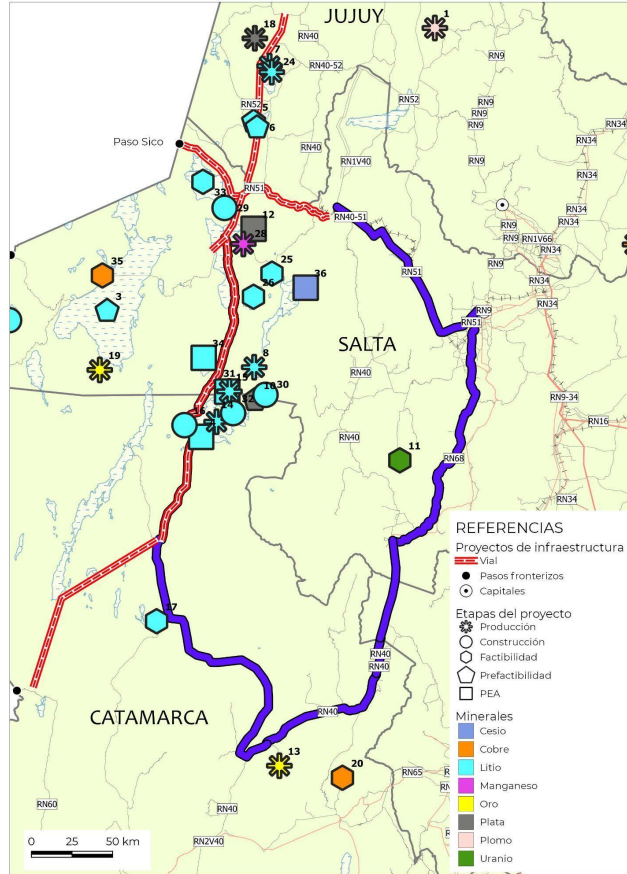
Provinces: Jujuy, Salta, Tucumán y Catamarca

## Identified Road Requirements

At the regional level, specifically for the area where a large number of salt flats with lithium production projects (or with prospect of starting operations in the short and medium term) are located, the improvement of the layout<sup>1</sup> of a road corridor that forms a transportation ring to promote logistic and commercial development in the area has been identified.

This route covers a total distance of approximately 1,088 kilometers and is made up of the following main sections:

- Salta: National Route 51. Section between Salta City - San Antonio de los Cobres. Length: 170 km.
- Salta: National Route 51. Section between San Antonio de los Cobres - Provincial Route 27 junction. Length: 68 km.
- Salta: National Route 68. Section from the intersection with National Route 40 towards the city of Salta. Length: 183 km.
- Catamarca: National Route 40. Section from the intersection with Provincial Route 36 to the intersection with National Route 68. Length: 203 km.
- Salta: Provincial Route 17. Section from the intersection with Provincial Route 27 to the end of Provincial Route 17 (at the border with the province of Catamarca). Length: 108 km.
- Catamarca: Provincial Route 43 and Provincial Route 36. Section from the end of Provincial Route 17 (Salta) to become Provincial Route 43 (Catamarca) up to the intersection of Provincial Route 36 (Catamarca) with National Route 40. Length: 317 km.
- Salta: Provincial Route 27. Section between the intersection with National Route 51 up to the intersection of Provincial Route 27 with Provincial Route 17 in Salar de Pocitos. Length: 38 km.



1. In the first instance, the identification of the improvements are oriented only to the route, with a subsequent readjustment planned to ensure logistical adaptation for bi-trains, including the expansion of bridges, increase of the permitted tonnage and other technical improvements necessary for the transport of mining products.



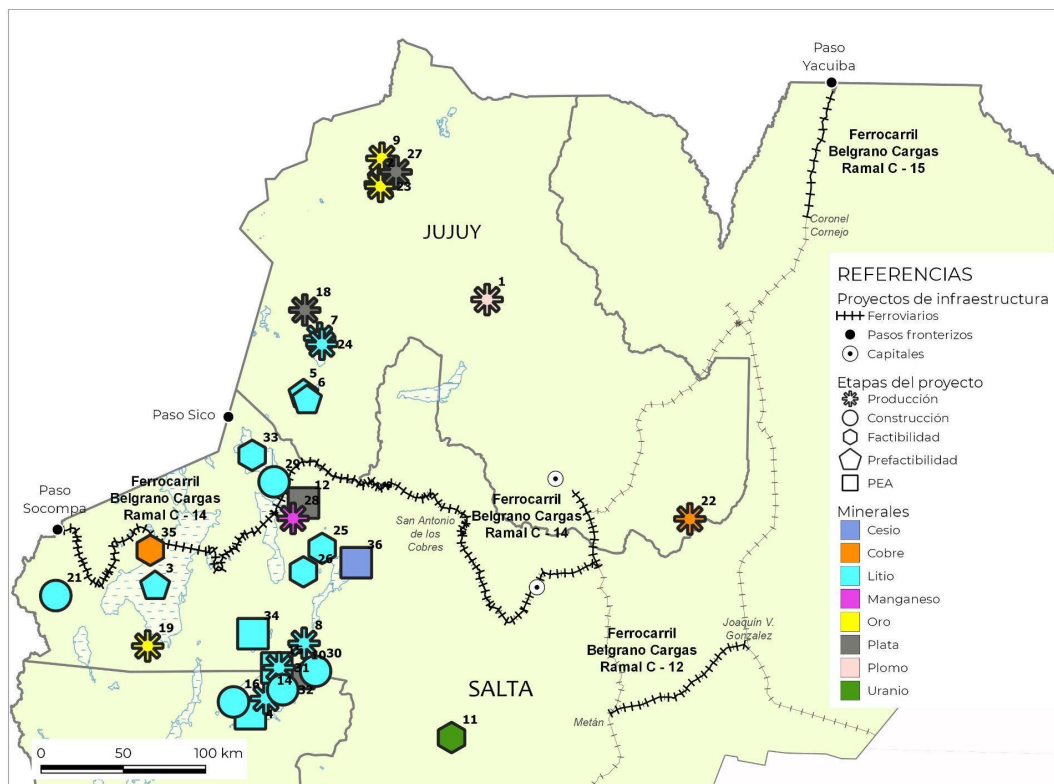
# NOA Region

Provinces: Jujuy, Salta, Tucumán y Catamarca

## Identified Railroad Requirements

At the railway level, improvements are identified in the Belgrano Cargas Railroad through the rehabilitation and overhaul of the C15, C14 and C12 branches, as well as the connection with neighboring countries such as **Chile** and **Bolivia**. Below are the sections to be improved, all located in the province of **Salta**:

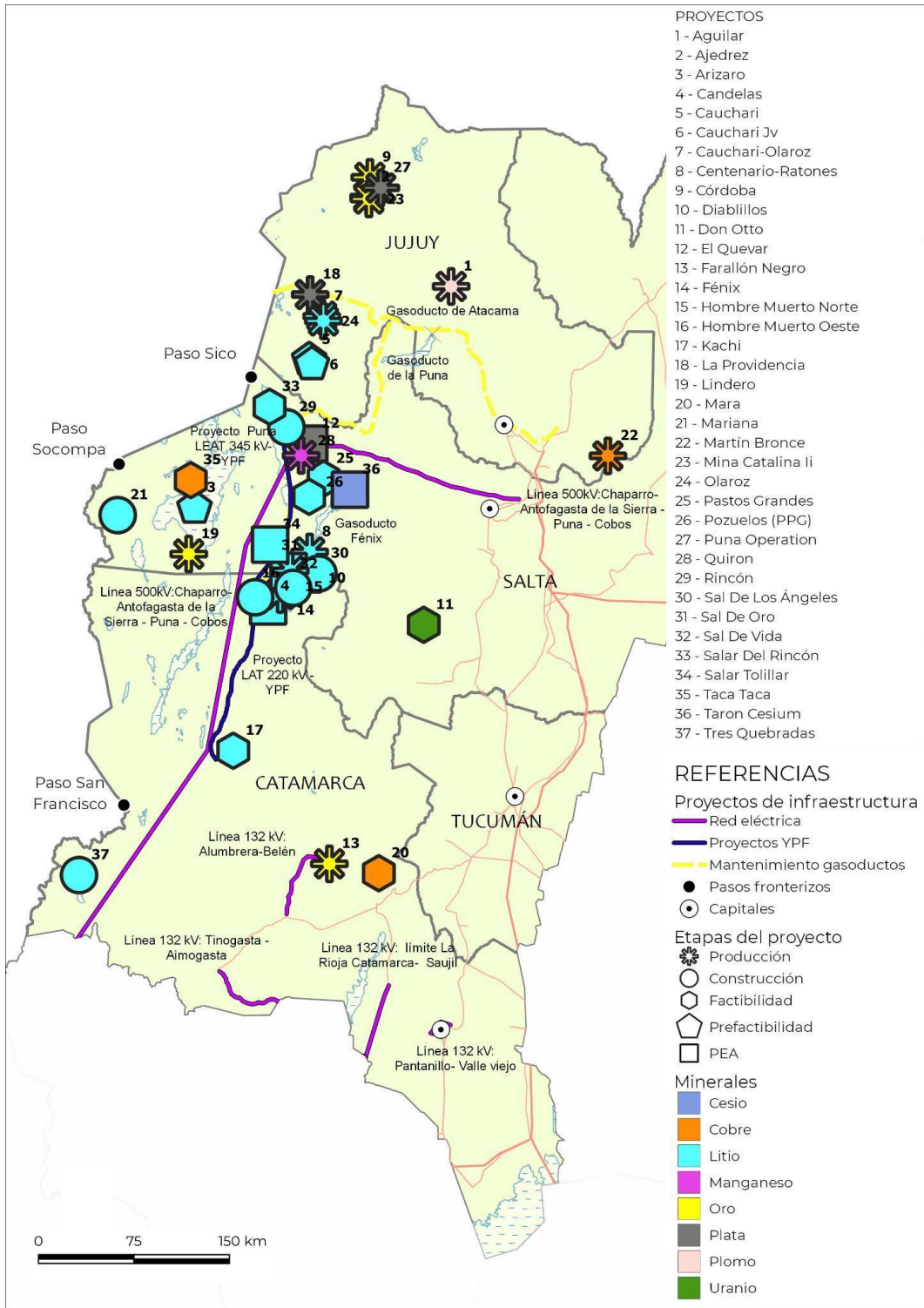
- From the city of Salta to the town of San Antonio de los Cobres (160 km): Restore and optimize the C14 branch of the Belgrano Cargas Railroad.
- From the Department of San Antonio de los Cobres to Salar de Pocitos (100 km): Continuation of the rehabilitation of the C14 branch.
- From Salar de Pocitos to Paso Internacional Socompa (210 km): Complete renovation of the C14 branch to the border with Chile.
- Renewal of the C12 branch line (estimated distance: 110 km): Section between the towns of Metán and Joaquín V. González, improving the infrastructure of the Belgrano Cargas Railway.
- Recovery of railway crossings to Bolivia (estimated distance: 85 km): C15 branch line, section between the towns of Coronel Cornejo and Salvador Mazza in the province of Salta and Yacuiba (Bolivia).



# NOA Region

Provinces: Jujuy, Salta, Tucumán y Catamarca

## Energy Requirements Map





# NOA Region

Provinces: Jujuy, Salta, Tucumán y Catamarca

## Identified Energy Requirements

At the energy level, regarding gas pipelines, maintenance of the Atacama, Puna and Fénix gas pipelines is identified. In addition, the installation of a compressor located in the area adjacent to the Río de Las Burras, located at the head of the La Puna gas pipeline, in the province of **Salta**, is planned.

On the other hand, according to the projections of Compañía Administradora del Mercado Mayorista Eléctrico S.A. (CAMMESA), there is a need to create new power transmission lines in the region. Due to the lack of precise information on the exact layout of the lines, the sections are presented in an approximate manner. Also, in this context, two of the projected lines are considered bi-regional, as they include sectors in more than one defined region<sup>2</sup>:

### Future 132 kv lines (bi regional):

- Tinogasta (Catamarca) - Aimogasta (La Rioja) section
- La Rioja / Catamarca border - Saujil section

### Future 500 kV lines (bi-regional):

- Chaparro - Antofagasta de la Sierra - Puna - Cobos section

In turn, the proposals are presented by province:

### Catamarca:

- Alumbreira - Belén section.
- La Rioja - Catamarca - Saujil limit section
- La Rioja - Catamarca limit section
- Pantanillo - Valle Viejo section

The map also shows YPF Luz's projections, which, like CAMMESA's projects, indicate the need for new power transmission lines in the region. Due to the lack of precise information about its route exactly, the routes are presented in an approximate manner. However, the YPF Luz's projects have a higher degree of feasibility than CAMMESA's one.

### Salta

- 345 kv line. Salar rincón - Catamarca limit section

### Catamarca

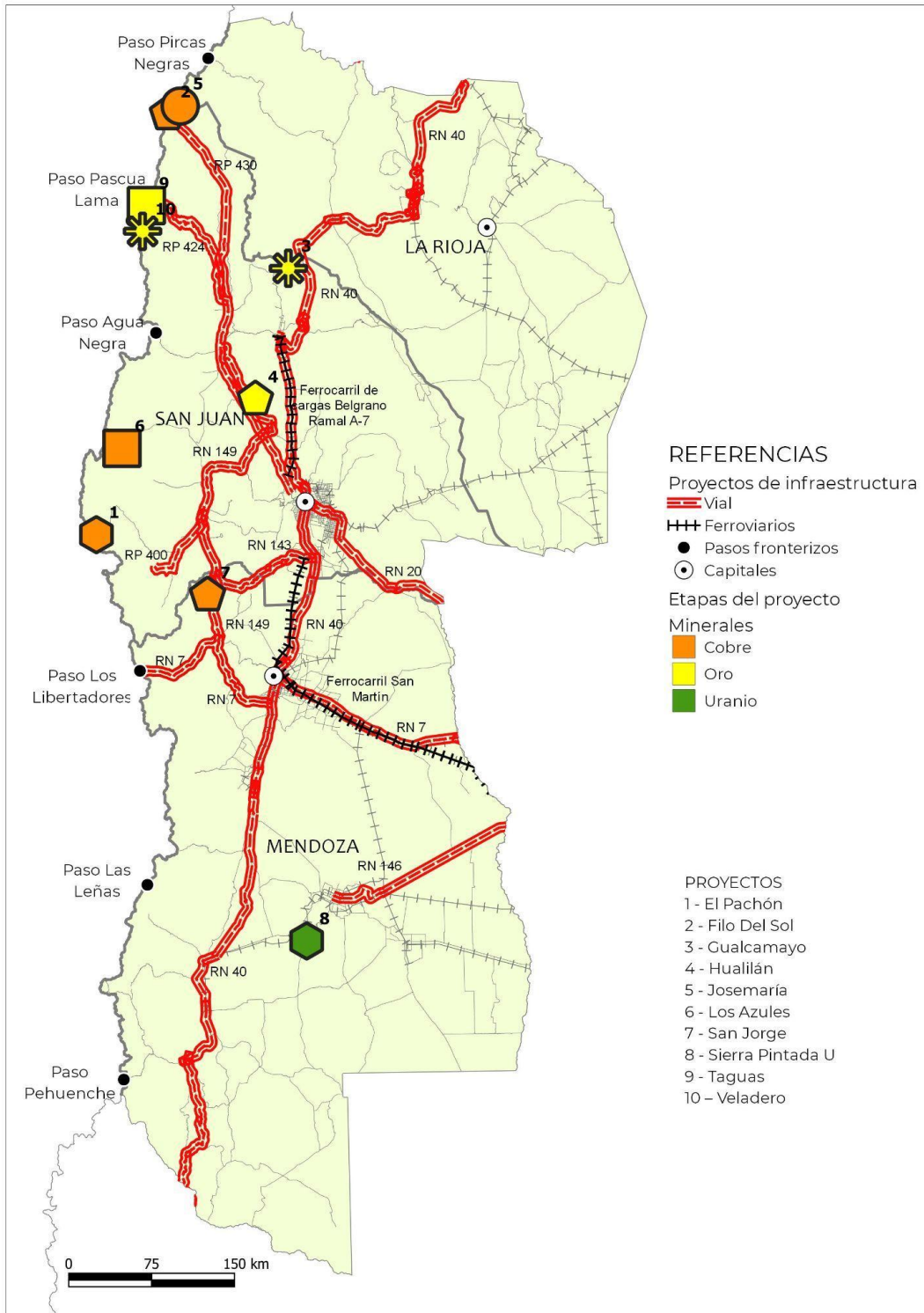
- 220 kv line. Salar del hombre muerto - Salar Carachi Pampa section

2. A transmission line that includes a relatively short distance section within the province of La Rioja (Cuyo region) is considered bi-regional, highlighting its integration with the electrical infrastructure of the NOA.

# CUYO Region

Provinces: La Rioja, San Juan y Mendoza

## Road and Railway Requirements Map



## CUYO Region

Provinces: La Rioja, San Juan y Mendoza

### Identified Road Requirements

At the road level, the following improvements have been identified for the connection between the provinces of the region and the mining projects in order to optimize regional and national transportation:

- Expansion to highway or improvement of National Route 7 along its entire route within the region.
- Expansion to highway or improvement of National Route 40 along its entire route within the region.
- Expansion to dual carriageway or improvement of National Route 146 along its entire route within the region.

In turn, the proposals are presented by province:

#### San Juan

- Expansion to highway or improvement of National Route 149 along its entire route within the province.
- Expansion to highway or improvement of National Route 153 along its entire route within the province.
- Improvement of the route of Provincial Route 424 to link with the Pascua Lama Pass to Chile.
- Paving of the Agua Negra Tunnel to facilitate international traffic towards Chile.
- Improvement of Provincial Route 400 from National Route 149 in the locality of Barreal. 120 km stretch of gravel road.

#### Mendoza

- Expansion to highway or improvement of National Route 149 along its entire route within the province.
- Expansion to highway or improvement of National Route 153 along its entire route within the province.
- Improvement to the infrastructure of the Los Libertadores International Pass (Cristo Redentor) towards Chile.
- Development of the Las Leñas Pass to Chile.
- Adaptation of the Pehuenche Pass to increase the maximum transitable load and extend operating hours.

#### La Rioja

- Paving of the Pircas Negras International Pass, Barrancas Blancas section - Border with Chile.

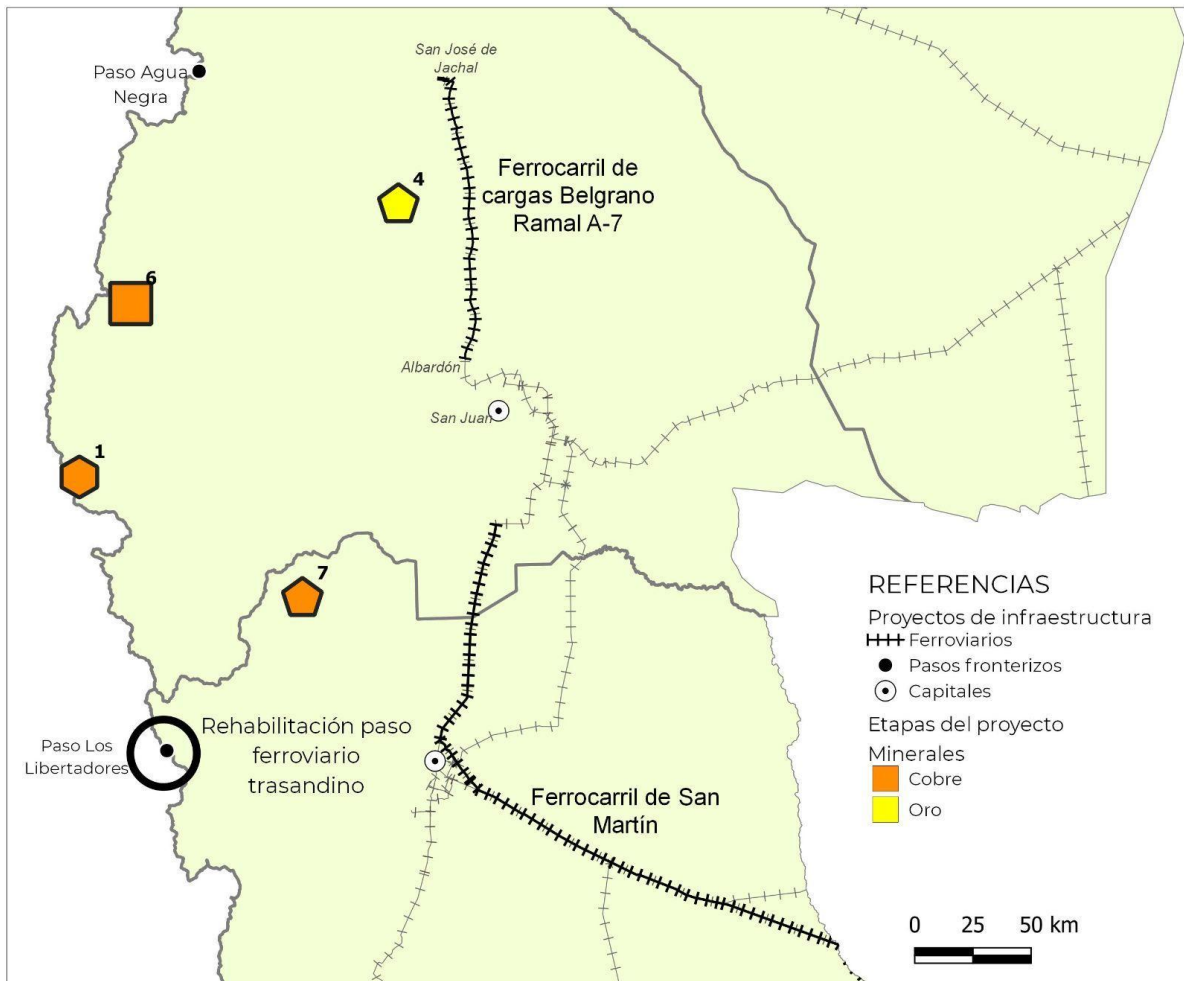


# CUYO Region

Provinces: La Rioja, San Juan y Mendoza

## Identified Railroad Requirements

At the railway level, the improvement and extension of the San Martín Railway tracks towards Rosario is identified throughout the regional area<sup>3</sup> is identified. In the province of **San Juan**, the repair and reactivation of the A-7 branch of the Belgrano Cargas line in the Jáchal-Albardón section is identified. Finally, in the province of **Mendoza**, the rehabilitation of the trans-Andean railway crossing to Chile is proposed.

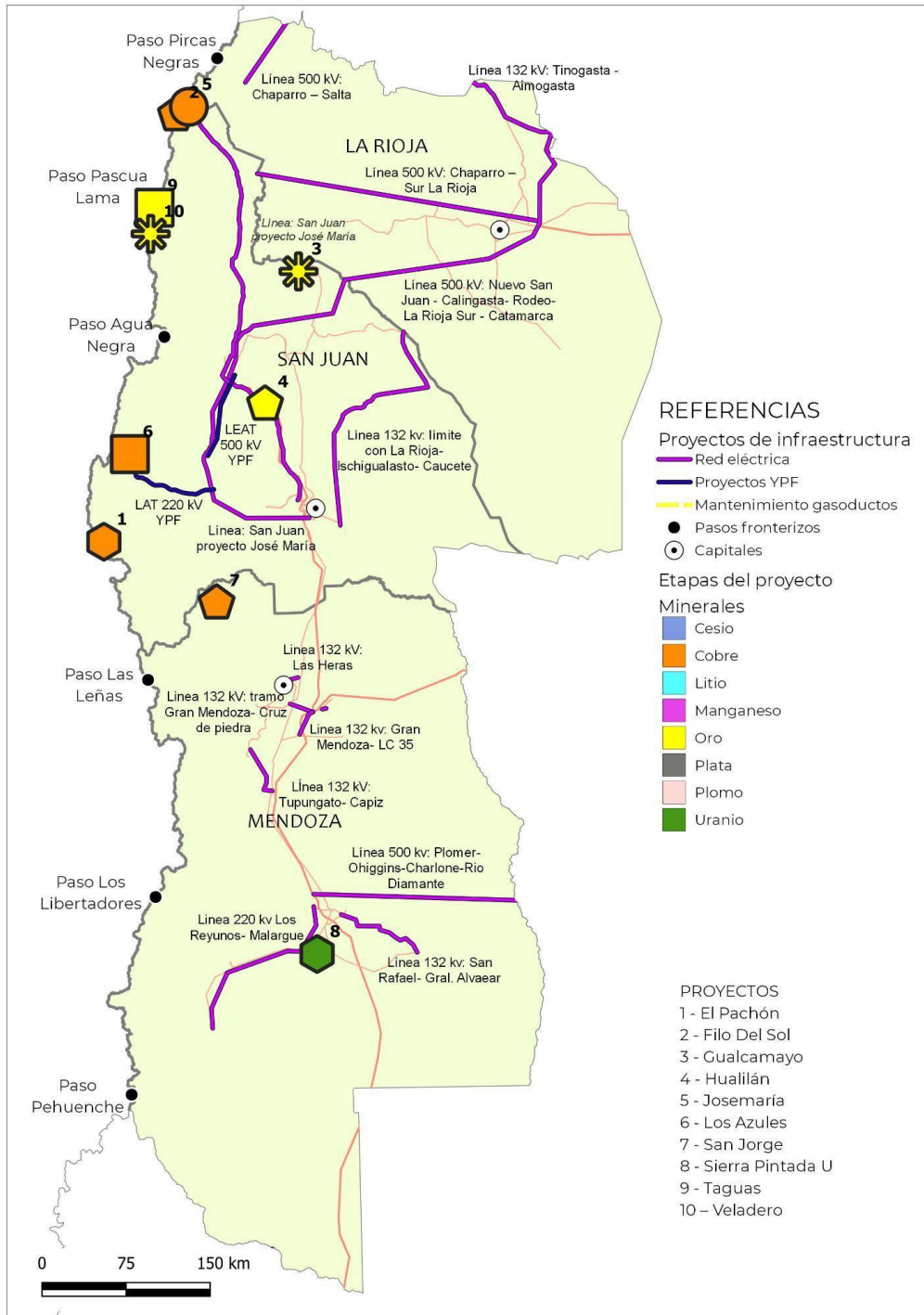


3. This bi-regional section will also be identified on the map of the CENTRO zone with orientation towards Rosario, as indicated in the request.

# CUYO Region

Provinces: La Rioja, San Juan y Mendoza

## Energy Requirements Map



# CUYO Region

Provinces: La Rioja, San Juan y Mendoza

## Identified Energy Requirements

At the energy level, there are improvements that cover several provinces in the region as well as others that are specific to only some of them. According to the projections of the Compañía Administradora del Mercado Mayorista Eléctrico S.A. (CAMMESA), there is a need to create new electric transmission lines in the region. Due to the lack of precise information on the exact layout of the lines, the sections are presented in an approximate manner. Also, in this context, two of the projected lines are considered bi-regional, as they include sections in more than one region<sup>2</sup>:

### Future 132 kv lines (bi-regional):

- Tinogasta (Catamarca) - Aimogasta (La Rioja) section
- La Rioja / Catamarca border - Saujil section

### Future 500 kV lines (bi-regional):

- Chaparro - Antofagasta de la Sierra - Puna - Cobos section.

On the other hand, the regional improvements consist of the construction of 500 kV power lines. Their sections are detailed below in an approximate manner (information on the exact layout of the lines is not available):

### Future 500 kV lines:

- Plomer - O'Higgins - Charlone - Diamante River section
- Chaparro - South of La Rioja section

In turn, provincial sections are presented, also in an approximate manner:

### San Juan

- Future 500 kV lines. Nuevo San Juan - Calingasta - Rodeo - South of La Rioja - Catamarca border section
- Future 132 kV lines: La Rioja - Ischigualasto - Cauce section.

2. A transmission line that includes a relatively short distance section within the province of La Rioja (Cuyo region) is considered bi-regional, highlighting its integration with the electrical infrastructure of the NOA.



# CUYO Region

Provinces: La Rioja, San Juan y Mendoza

## Identified Energy Requirements

### Mendoza

- Future 132 kV lines:
  - Section: Las Heras.
  - Section: Gran Mendoza - Cruz de Piedra.
  - Section: Gran Mendoza - LC 35.
  - Section: Míguez - L.G. San Martín.
  - Section: Tupungato - Capiz.
  - Section: San Rafael - General Alvear.
  
- Future 220 kV line. Los Reyunos - Malargüe section

The map above also shows YPF Luz's electric transmission projects, which, like CAMMESA's projections, indicate the need for new electric transmission lines in the region. Due to the lack of precise information on their exact layout, the routes are presented in an approximate manner. However, YPF Luz's projects have a higher degree of feasibility than CAMMESA's one.

### San Juan

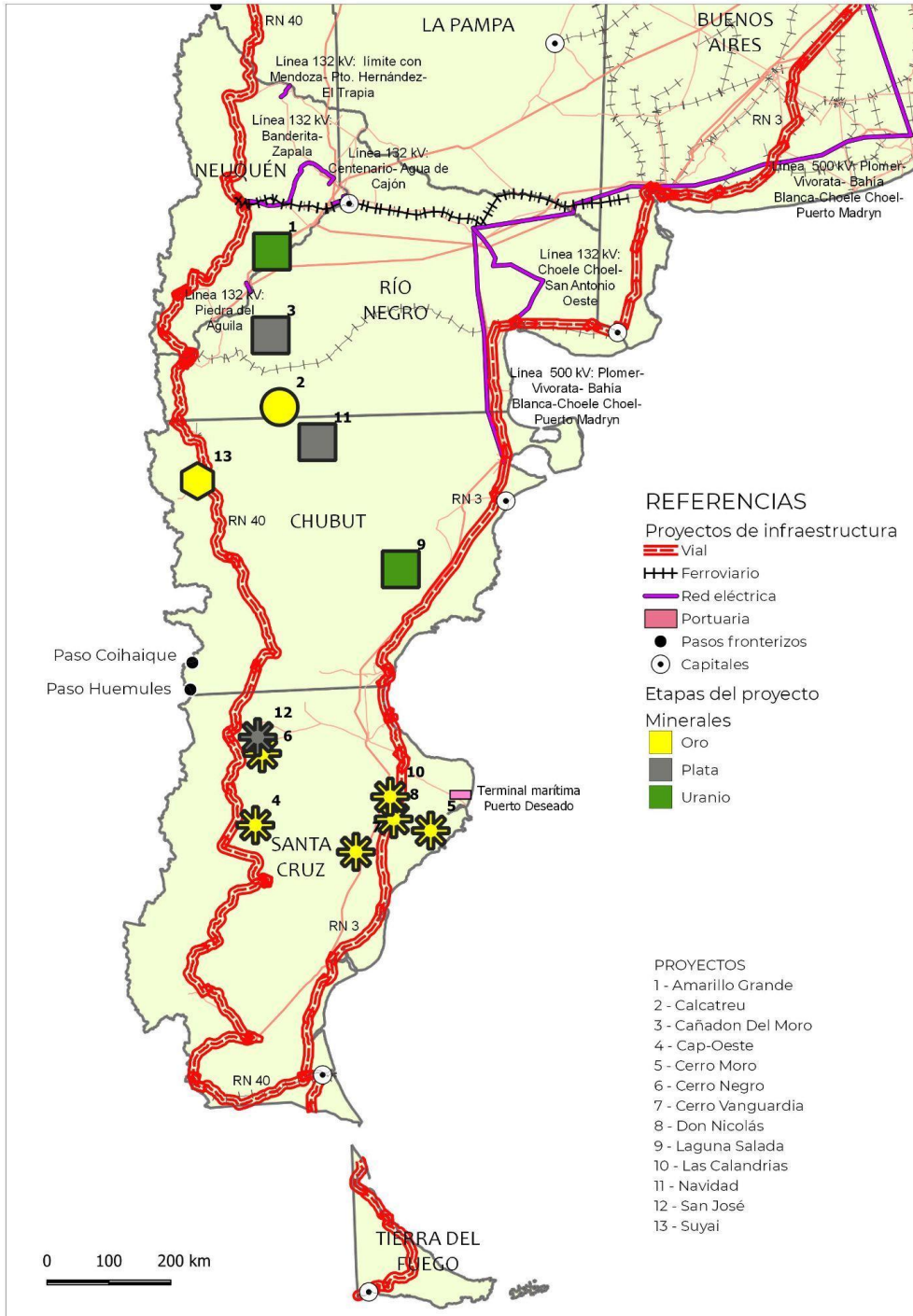
- 500 kv line. Iglesias - Puchuzun section
- 220 kv line. Los Azules - Calingasta Project section



# PATAGONIA Region

Provinces: Neuquén, Río Negro, Chubut, Santa Cruz y Tierra del Fuego, Antártida e Islas del Atlántico Sur.

## Road, Rail and Energy Requirements Map



# PATAGONIA Region

Provinces: Neuquén, Río Negro, Chubut, Santa Cruz y Tierra del Fuego, Antártida e Islas del Atlántico Sur.

## Identified Road Requirements

At the road level, the following improvements have been identified for the connection between the provinces of the region and the mining projects in order to optimize regional and national transportation:

- Expansion to highway or improvement of National Route 3 along its entire route within the region.
- Expansion to highway or improvement of National Route 40 along its entire route within the region.

The proposals are detailed by province:

### Chubut

- Paving of Paso Coihaique to Chile.
- Paving of the Huemules Pass to Chile.

### Santa Cruz

- Refurbishment of the Puerto Deseado maritime terminal.

## Identified Railroad Requirements

At the railway level, the rehabilitation of the Ferrosur Roca section is identified to fully serve the railway corridor and the development of the train that connects Bahía Blanca with Añelo, improving the logistics linked to Vaca Muerta.

## Identified Energy Requirements

At the energy level, certain improvements are identified on a regional basis while others are specific to each province. In this sense, the regional improvements consist of the construction of the future 500 kV line in the Plomer - Vivorata - Bahía Blanca - Choele Choel - Puerto Madryn section.

In turn, future lines are presented with approximate layout (there is no information on the exact layout of the lines), by province:

### Río Negro

- Future 132 kV line, Choele Choel - San Antonio Oeste section

### Neuquén

- Future 132 kV lines

Section: Border with Mendoza - Puerto Hernández - El Trapial

Section: Puesto Banderita Plant - Zapala

Section: Centenario - Agua de Cajón

Section: CNIA Valentina

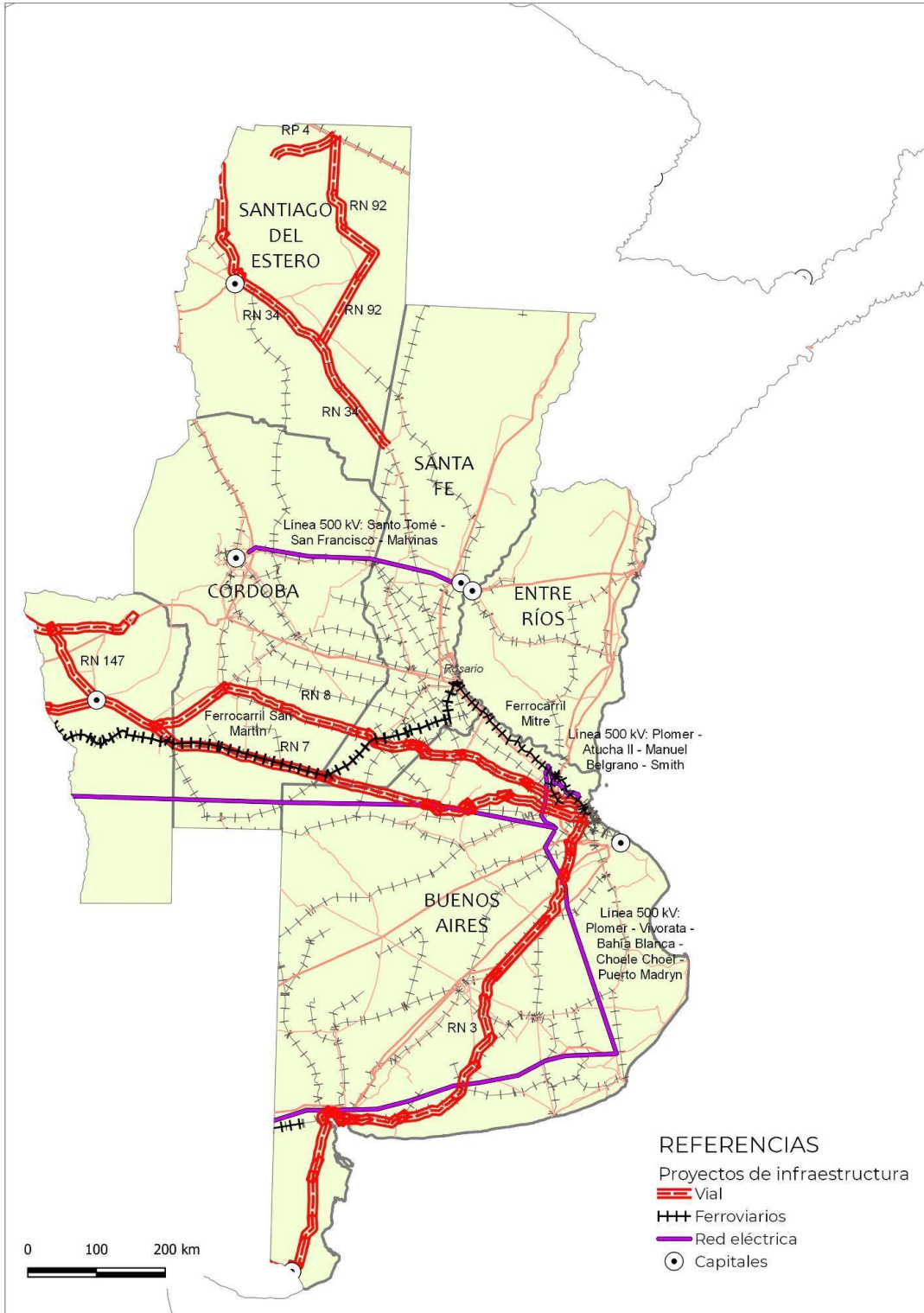
Section: Paso del Águila



# CENTRO Region

Provinces: Buenos Aires, Santa Fe, Córdoba, San Luis, Santiago del Estero y Entre Ríos.

## Road, Rail and Energy Requirements Map



## CENTRO Region

Provinces: Buenos Aires, Santa Fe, Córdoba, San Luis, Santiago del Estero y Entre Ríos.

### Identified Road Requirements

At the road level, the following improvements have been identified for the connection between the provinces of the region and the mining projects in order to optimize regional and national transportation:

- Expansion to highway or improvement of National Route 8 along its entire route within the region.
- Expansion to highway or improvement of National Route 147 along its entire route within the region.
- Expansion to highway or improvement of National Route 34 in the provincial route.

The proposals for the province of **Santiago del Estero** are also detailed:

- Complete paving of Provincial Route 92. Section from Monte Quemado to the intersection with National Route 34.
- Complete paving of Provincial Route 4, Tucumán (7 de Abril) - Monte Quemado border, Santiago del Estero.

### Identified Energy Requirements

At the energy level, improvements are proposed to the transfer lines, with approximate sections (there is no information on the exact layout of the lines), in the provinces of Buenos Aires and Córdoba. They are presented below:

#### Buenos Aires

- Future 500 kV line: Plomer - Atucha II - Manuel Belgrano - Smith section

#### Córdoba

- Future 500 kV line: Santo Tomé - San Francisco - Malvinas section



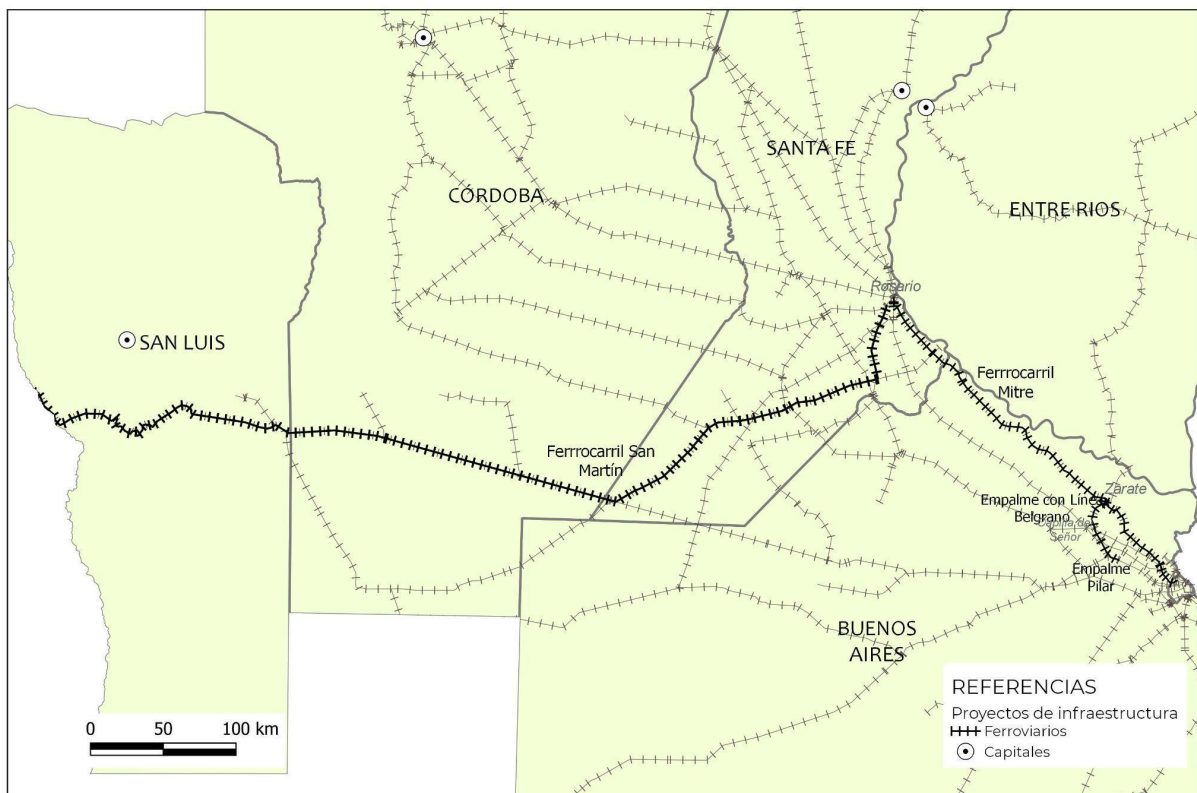
# CENTRO Region

Provinces: Buenos Aires, Santa Fe, Córdoba, San Luis, Santiago del Estero y Entre Ríos.

## Identified Railroad Requirements

At the railroad level, improvements are proposed for the railway network that connects the province of Buenos Aires with the south of the province of Santa Fe. These proposals are detailed below:

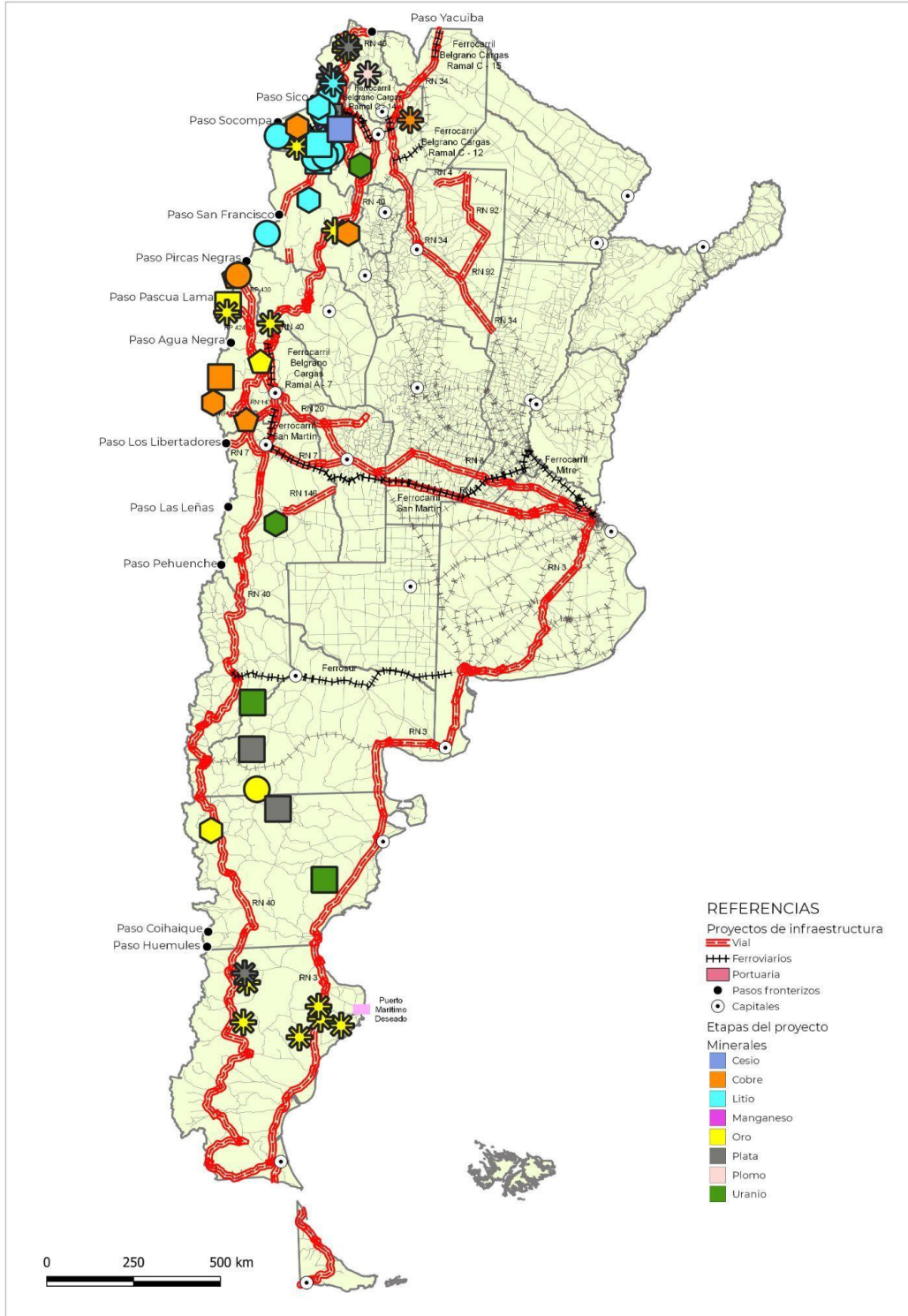
- Junction in Pilar: Make the connection of the San Martín Line with wide up to the town of Capilla del Señor.
- Junction with the Belgrano Line: Develop the two-track section from the town of Capilla del Señor to the city of Zárate.
- Two-track access to Zárate (Urquiza Line): Construction of infrastructure for two-track access to Zárate station.
- Broad gauge connection with Mitre tracks in Zárate: Make the connection to the north and south to facilitate access to terminals in the southern area of Rosario.
- Bi-gauge section to Zárate station (Urquiza Line): Development of bi-gauge railway infrastructure in the corresponding section.



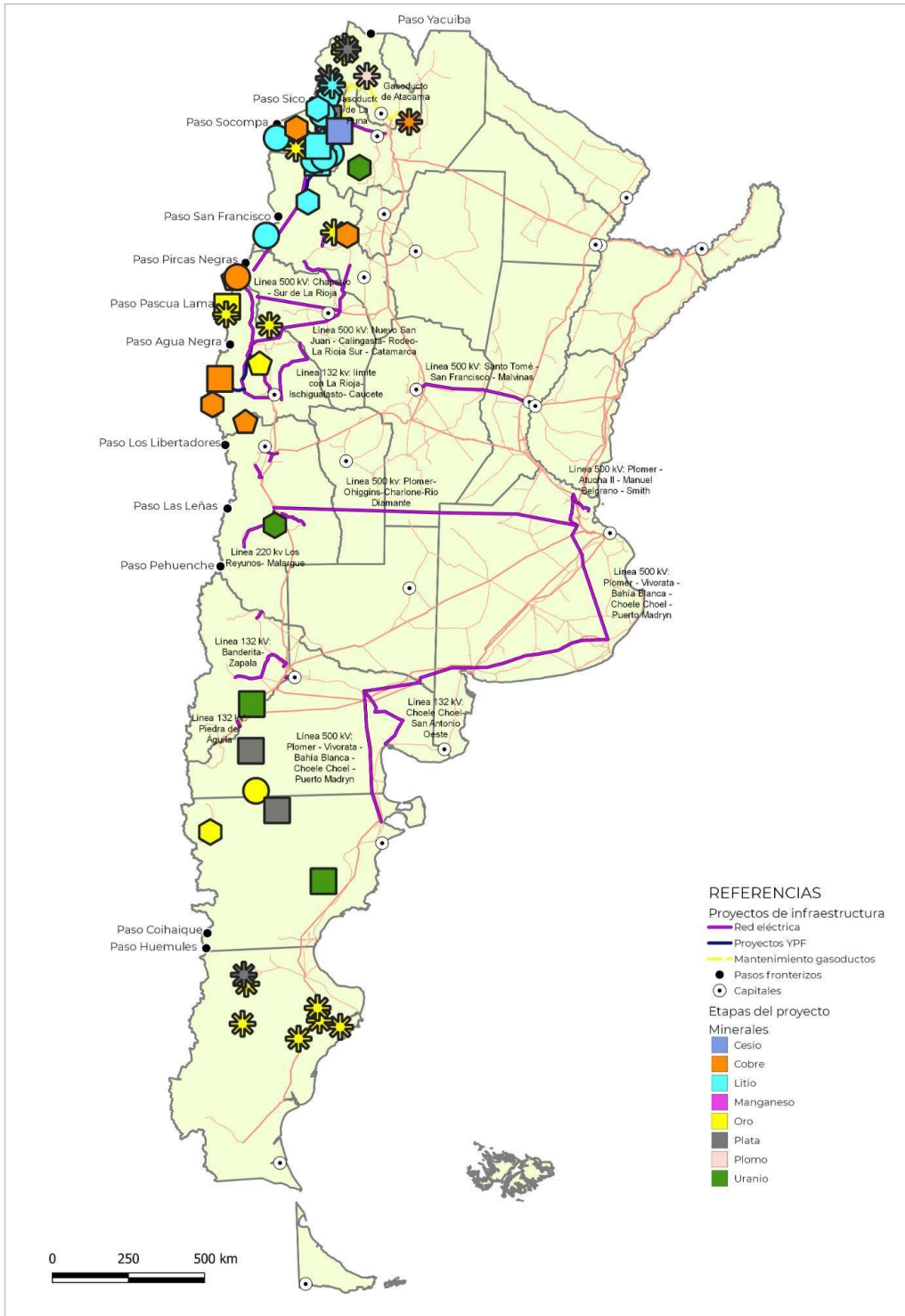


# APPENDIX

## Map of Road and Rail Requirements for Argentina's Mining Development



# Map of Energy Requirements for Argentina's Mining Development



## Objective

The main objective of this report is to analyze the infrastructure requirements for mining development in the various regions that are linked to metalliferous and lithium mining projects in Argentina, anticipating the needs and challenges to be addressed for the start-up of new mining operations (mainly linked to new mineral projects such as copper, lithium, gold, silver and uranium).

The development of mining infrastructure is an essential factor for the operation and competitiveness of the sector, as it improves the efficiency of the transportation and reduces the operating costs of companies. Having an infrastructure in accordance with the productive context of mining is of great importance not only because of the impact it may have on the mining sector itself, but also due to the contribution of works in the provinces where the works are carried out, improving the quality of life of the communities surrounding the mining areas, which are, in a significant number of cases, far from large urban centers.

In this sense, emphasis is placed on infrastructure data related to the access routes to the projects (roads), transportation of the products necessary for their construction, production (in addition to plant maintenance) and subsequent transfer for sale abroad (roads and railways) and, finally, the requirements necessary to sustain production in energy terms (high voltage lines, transformer stations, gas pipelines, etc.).

In the near future, it will also be important to advance in the analysis of the infrastructure provided and required by non-metalliferous and industrial minerals, which has a considerable territorial extension throughout the country.

## Methodology and Sources of Information

The main sources of information include data from agencies and areas belonging to the National Public Administration, third sector business organizations and even private sector companies linked to Argentina's mining industry. These include:

- Dirección Nacional de Promoción y Economía Minera; Dirección Nacional de Cadena de Valor e Infraestructura Minera (Secretaría de Minería de la Nación).
- Dirección Nacional de Vialidad.
- Consejo Federal de Inversiones.
- Trenes Argentinos de Carga.
- Compañía Administradora del Mercado Mayorista Eléctrico S.A. (CAMMESA).
- Cámara Argentina de Empresarios Mineros (CAEM).
- Unión Industrial Argentina (UIA).
- CAMYEN S.E.
- Requirements of operating and controlling companies of mining projects in advanced stages.



The analysis of the information compiled on infrastructure requirements for the development of mining in Argentina will be divided into the following geographical areas:

- **NOA** (grouping Jujuy, Salta, Catamarca y Tucumán);
- **CUYO** (Mendoza, San Juan y La rioja);
- **PATAGONIA** (Neuquén, Río Negro, Chubut, Santa Cruz y Tierra del Fuego, Antártida e Islas del Atlántico Sur) and;
- **CENTRO** (Buenos Aires, Santa Fe, Córdoba, San Luis, Santiago del Estero y Entre Ríos).

Each region and the respective provinces that comprise it have a reason for being. In the case of the NOA, it is the region of the country that is in mining growth due to the large number of lithium projects (in salt flats) in production and in pre-operational stages, which will start their productive phase in the short and medium term. The region also has copper projects in advanced stages.

Regarding Cuyo, it is the region of the country where the largest number of copper projects are located in pre-production stages, with opportunities to start operations in the medium term of world-class copper projects. It also has projects in production and in other pre-production stages.

In the case of the Patagonia region, it includes most of the gold and silver projects in production in Argentina for the year 2025, with the geological characteristics to continue being a mining region with significant production of the aforementioned metals in the short and medium term.

Finally, the Central region is selected and contains mining infrastructure requirements because, if the exit of metalliferous and lithium mining products through ports with access to the Atlantic Ocean is planned and projected, their location and transportation to them is in the provinces located in this region.

#### *Clarifications according to type of requirement*

In the **road requirements**, the National and Provincial Routes are shown in red for their entire length due to their connection with key points for the export of raw materials. However, this does not imply that the entire route should be subject to modifications and/or improvements. In this sense, the specific areas requiring intervention are detailed in the description of each corresponding zone.

Continuing with the road issue, infrastructure requirements are not specifically differentiated according to their final export shipping destination (there is no precise information to define whether they are works to improve the exit towards the Atlantic Ocean or the Pacific). However, the routes that extend in a west-east direction are oriented towards Argentine ports, while the border crossings facilitate the exit of products to the Pacific Ocean.



The **railway requirements** include only those sections of the respective railway lines that are of interest for the mining infrastructure. This point does not detract from the fact that there may be a conjunction of interests between mining and other productive sectors regarding these routes (or others not identified in this report), which exceed the objective of this document.

Finally, with regard to energy requirements, the high-voltage line layouts presented in the respective maps are approximate estimates because the exact layouts of the lines are not available (technical engineering issues are beyond the scope of this report).

They are also colour-coded: all the projects corresponding to the expansion projections of the Argentine Interconnection System (SADI) prepared by CAMMESA are in violet; while the lines projected for specific projects of the YPF Luz company are in blue (without having to coincide with CAMMESA's routes, being separate projects). Regarding the gas pipelines, the requirements are located on the maps in yellow.

## **National Mining Infrastructure Context: Metal and Lithium Mining in Argentina.**

Infrastructure development is essential for the efficient operation of mining projects, generating not only benefits for the mining sector, but also significant improvements in the quality of life of nearby communities.

This report focuses on metal and lithium projects, with a particular focus on the different types of infrastructure that allow access to deposits. The expansion of the mining sector is driving improvements in key areas such as electric power, land and rail transport, ports and water supply. Given the high level of investment and long maturity period that characterize mining, companies are turning to strategic alliances and consolidation processes (with mergers and acquisitions) to optimize resources and reduce capital costs.

The analysis of key aspects such as transport, logistics, water and energy supply in Argentina is particularly relevant in the context of the growing interest in the mining sector. Since 2020, there has been a boom in investment announcements, with commitments made by companies in the sector in Argentina exceeding 11 billion dollars.

This scenario allows us to assess the potential for investment in infrastructure, driven by a series of strategic projects that will be decisive for the development of the sector. Among them, 24 projects in production stand out as of the first quarter of 2025:





**Metal and Lithium Mining Projects in Operation, February 2025**

PROJECT	COMMODITY 1	COMMODITY 2	COMMODITY 3	PROVINCE
<b>Aguilar</b>	Lead	Zinc	Silver	Jujuy
<b>Ajedrez</b>	Gold	-	-	Jujuy
<b>Cap-Oeste</b>	Gold	Silver	-	Santa Cruz
<b>Cauchari-Olaroz</b>	Lithium	-	-	Jujuy
<b>Centenario-Ratones</b>	Lithium	-	-	Salta
<b>Cerro Moro</b>	Gold	Silver	-	Santa Cruz
<b>Cerro Negro</b>	Gold	Silver	-	Santa Cruz
<b>Cerro Vanguardia</b>	Gold	Silver	-	Santa Cruz
<b>Córdoba</b>	Gold	-	-	Jujuy
<b>Don Nicolás</b>	Gold	Silver	-	Santa Cruz
<b>Farallón Negro</b>	Gold	Silver	-	Catamarca
<b>Fenix</b>	Lithium	-	-	Catamarca
<b>Gualcamayo</b>	Gold	Copper	-	San Juan
<b>La Providencia</b>	Silver	Copper	Lead	Jujuy
<b>Las Calandrias</b>	Gold	Silver	Copper	Santa Cruz
<b>Lindero</b>	Gold	Silver	-	Salta
<b>Mariana</b>	Lithium	Potassium	Borates	Salta
<b>Martín Bronce</b>	Copper	-	-	Jujuy
<b>Mina Catalina II</b>	Gold	-	-	Jujuy
<b>Olaroz</b>	Lithium	-	-	Jujuy
<b>Puna Operation</b>	Silver	Lead	Zinc	Jujuy
<b>Quiron</b>	Manganese	Iron	-	Salta
<b>Sal de Oro</b>	Lithium	Potassium	-	Catamarca - Salta
<b>San José</b>	Silver	Gold	Lead	Santa Cruz
<b>Veladero</b>	Gold	Silver	-	San Juan

Source: National Directorate of Mining Promotion and Economy.

In addition, Argentina has 35 projects in advanced stages prior to the start of operations in the metal and lithium mining sector. Of the total, 7 are under construction, 10 in feasibility, 7 in pre-feasibility and 11 in preliminary economic assessment (PEA). Below, in the next four tables, they are presented with a higher level of information, observing them by minerals to be produced and by province of location.

**Metal and Lithium Mining Projects Under Construction, February 2025**

PROJECT	COMMODITY 1	COMMODITY 2	COMMODITY 3	PROVINCE
<b>Calcatreu</b>	Gold	Silver	-	Río Negro
<b>Hombre Muerto Oeste</b>	Lithium	Potassium	-	Catamarca
<b>Josemaría</b>	Copper	Gold	Silver	San Juan
<b>Rincón</b>	Lithium	-	-	Salta
<b>Sal de Los Ángeles</b>	Lithium	Potassium	-	Salta
<b>Sal de Vida</b>	Lithium	Potassium	-	Catamarca
<b>Tres Quebradas</b>	Lithium	Potassium	-	Catamarca

Source: National Directorate of Mining Promotion and Economy.





### Metal and Lithium Mining Projects in Feasibility, February 2025

PROJECT	COMMODITY 1	COMMODITY 2	COMMODITY 3	PROVINCE
<b>Don Otto</b>	Uranium	Vanadium		Salta
<b>El Pachón</b>	Copper	Silver	Molybdenum	San Juan
<b>Kachi</b>	Lithium	-	-	Catamarca
<b>Mara</b>	Copper	Gold	Silver	Catamarca
<b>Pastos Grandes</b>	Lithium	Potassium	-	Salta
<b>Pozuelos (PPG)</b>	Lithium	-	-	Salta
<b>Salar del Rincón</b>	Lithium	Potassium	-	Salta
<b>Sierra Pintada U</b>	Uranio			Mendoza
<b>Suyai</b>	Gold	Silver	-	Chubut
<b>Taca Taca</b>	Copper	Gold	Molybdenum	Salta

Source: National Directorate of Mining Promotion and Economy.

### Metal and Lithium Mining Projects in Pre-Feasibility, February 2025

PROJECT	COMMODITY 1	COMMODITY 2	COMMODITY 3	PROVINCE
<b>Arizaro</b>	Lithium	-	-	Salta
<b>Cauchari</b>	Lithium	Potassium	-	Jujuy
<b>Cauchari Jv</b>	Lithium	Potassium	-	Jujuy
<b>Diablillos</b>	Silver	Gold	Copper	Catamarca - Salta
<b>Filo Del Sol</b>	Copper	Gold	Silver	San Juan
<b>Hualilán</b>	Gold	Silver	Zinc	San Juan
<b>San Jorge</b>	Copper	Gold	-	Mendoza

Source: National Directorate of Mining Promotion and Economy.

### Metal and Lithium Mining Projects in PEA, February 2025

PROJECT	COMMODITY 1	COMMODITY 2	COMMODITY 3	PROVINCE
<b>Amarillo Grande</b>	Uranium	Vanadium	-	Río Negro
<b>Candelas</b>	Lithium	Potassium	-	Catamarca
<b>Cañadon Del Moro</b>	Silver	Gold		Río Negro
<b>El Quevar</b>	Silver	Lead	Zinc	Salta
<b>Hombre Muerto Norte</b>	Lithium	Potassium	-	Salta
<b>Laguna Salada</b>	Uranium	-	-	Chubut
<b>Los Azules</b>	Copper	Gold	Silver	San Juan
<b>Navidad</b>	Silver	Lead	Copper	Chubut
<b>Salar Tolillar</b>	Lithium	-	-	Salta
<b>Taguas</b>	Gold	Silver	Copper	San Juan
<b>Taron Cesium</b>	Cesium	Rubidium	Tantalum/Arsenic/Manganese	Salta

Source: National Directorate of Mining Promotion and Economy.



During the operational and construction stages, projects require adequate roads for the transport of heavy machinery and large volumes of material, as well as a stable energy supply. Currently, land transport of minerals depends mainly on trucks, which underlines the need to build, improve and maintain strategic routes and accesses.

In terms of export logistics, the projects located in Patagonia use the ports of Comodoro Rivadavia and Puerto Deseado, as well as the Ezeiza Airport for air shipments. In the NOA, production is mainly shipped through the Port of Rosario and the Ezeiza Airport, while in San Juan, the Belgrano Cargas Railway is key for the transport of minerals to the export ports.

The availability of adequate infrastructure is a determining factor for the realization of the planned investments. Strategic works such as roads, railways, power lines, gas pipelines and connectivity are essential for mining development and, at the same time, promote regional socioeconomic growth.

## **Prospects for Mining Development in Argentina**

For investment announcements by companies with mining projects in Argentina to materialize, the available infrastructure is positioned as a fundamental condition. If there is no progress in these challenges in terms of logistics and transportation, the productive development of the sector becomes unviable.

The quantities of inputs and exportable products to be transported, together with the need to generate and transport energy, create a bottleneck in the transport infrastructure in Argentina, acting as a limitation when it comes to carrying out the start of operations of mining projects that are currently in pre-production stages.

The set of routes, roads, railway lines, power lines, gas pipelines and connectivity are works that are conditional when analyzing the possibility of starting an operation. Critical points are the provision of energy and the logistics of transporting the mineral (and the inputs to process them), which end up simultaneously promoting the socioeconomic development of the provinces and local communities because they make previously non-existent resources available.

The development of infrastructure in mining regions has a double benefit: it promotes exports and foreign direct investment in the country and, at the same time, is an instrument for the development of regional and provincial economies. In addition, logistics infrastructure is essential to make mining exports viable.

The necessary investments are justified by their direct impact on the reduction of logistics and operating costs, in addition to the fact that without the relevant works the projects would not be in a position to begin the operation phase due to, for example, not having sufficient energy supply for such a scenario.

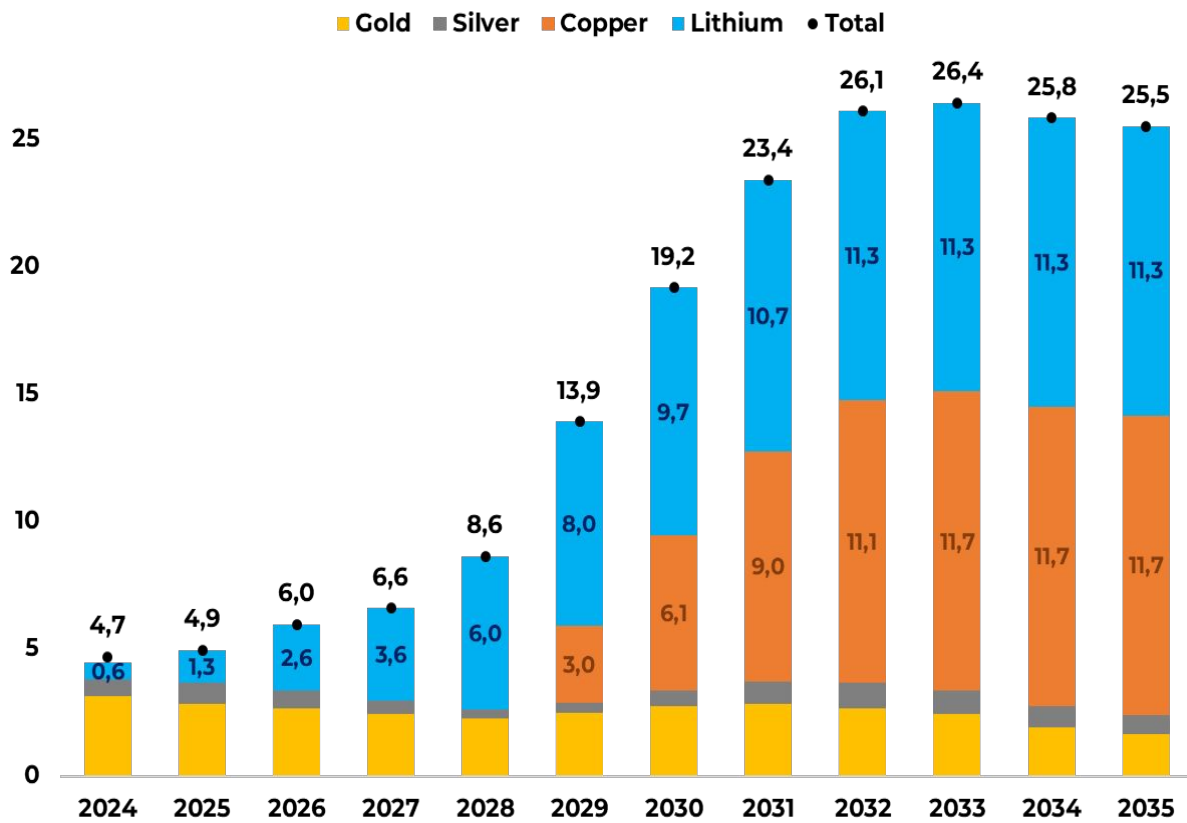


In this context, the National Directorate of Mining Promotion and Economy of the National Mining Secretariat has prepared export projections that reflect the expected evolution of the sector. It is worth mentioning that, as a necessary condition for the fulfillment of these projections, the identified infrastructure works are a fundamental requirement for the construction and operations of the mining projects included when calculating the projections to begin.

Below are Argentina's mining export projections according to the main minerals to be produced:

### Mining Export Projections by Mineral, 2025-2035

In millions of USD



Source: National Directorate of Mining Promotion and Economy.

The next decade, if the estimates are met, will be marked by several outstanding trends in terms of foreign trade in minerals:

- A significant number of lithium projects have a high probability of entering into production in the coming years, which is driving the boost in lithium exports. According to estimates, lithium exports could rise from USD 645 million in 2024 to more than USD 9.7 billion in 2030 and more than USD 11.3 billion in 2035. The progression in the amounts of lithium exported is observed from the beginning of the series until 2032, while after that year they stabilize.

- Regarding copper, the jump in terms of mineral exports would occur (if the estimate is met) in 2029, with also a growth in the amounts exported until 2032 and then a period of stabilization. In 2024, copper exports were marginal, with the possibility of reaching, as estimated, more than USD 6 billion by 2030 and exceeding USD 11.7 billion in 2035.
- Regarding gold and silver, the projects producing these minerals in Argentina in the first quarter of 2025 are in advanced stages of maturity, so in the coming years, if there are no new investments to achieve extensions in their useful life, they will begin to close down. This scenario means that, for the next decade, the amounts of gold exported will begin a declining path while silver will find relative stability. A determining factor for the amounts not to fall to zero is that copper projects include gold and silver production as secondary and tertiary minerals. Regarding the amounts, gold would go from USD 3,141 million exported in 2024 to more than USD 2,700 million in 2030 and just over USD 1,600 million in 2035. In the case of silver, it would go from USD 648 million exported in 2024 to just over USD 600 million in 2030 and close to USD 800 million in 2035.

In order to meet mining export projections, it is assumed that a certain number of projects will enter the construction phase and begin operations. Carrying out mining projects with high production scales and capital intensity leads companies to, as previously mentioned, seek strategies to obtain financing for the start of these processes.

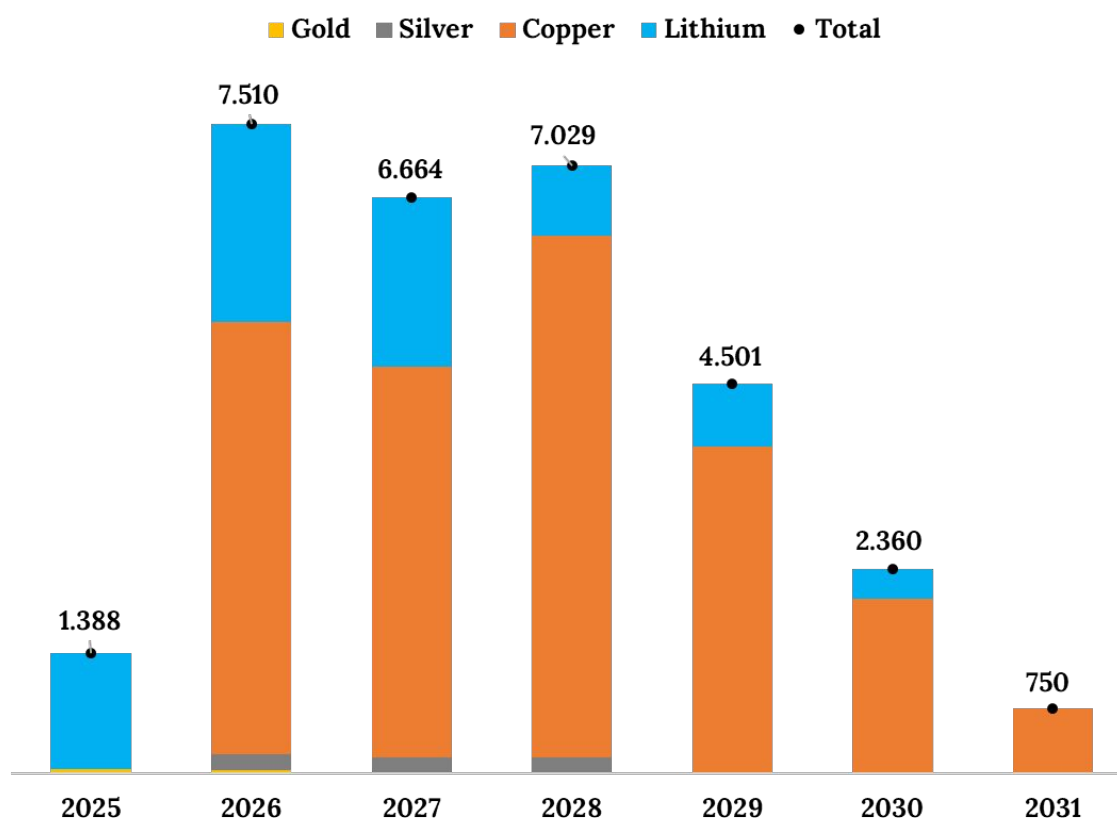
The search for financing is due to the high capital costs of large-scale metal and lithium mining, not only in Argentina but in all types of countries (central, emerging and peripheral, among others) around the world.

Due to the characteristics of the type of investment required to carry out a mining project, the estimated capital expenditures for starting mining projects that are included in the projections for Argentina's mining exports are presented below. Without these investment amounts, the exportable production of mining products cannot be carried out.



## Required Capital Expenditure Projections by Mineral, 2025-2031

In millions of USD



Source: National Directorate of Mining Promotion and Economy.

There are several points to note regarding capital expenditure by mineral type:

- Copper has an estimated capital expenditure of USD 22,116 million (79.4% of the capital expenditures surveyed) over the seven years selected, being the predominant mineral in terms of investment.
- Lithium is the second mineral in terms of importance in capital expenditure, with investments estimated at USD 7,883 million (28.3% of the total) in the selected period.
- Gold and silver rank third and fourth in terms of capital expenditures, at USD 79 million (0.3% of the total) and USD 544 million (2.0% of the total), respectively.

Based on the above data, it is clear that a large part of the investment in capital expenditure is in copper-related projects, which require the largest investment amounts to start production. Lithium, on the other hand, is in second place. This is consistent because lithium mining projects in Argentina are brine-based (in salt flats), which in comparative terms have lower capital costs on average than a large-scale copper project. Gold and silver, on the other hand, are marginal because there are few silver projects that need to invest in capital expenditure to continue producing, while there are no new gold projects in view of starting construction in the period.

As previously mentioned, the relative decline in gold and silver export projections is linked to the mine closure of a large part of the projects currently producing these minerals, in addition to the fact that these minerals will continue to be produced as a by-product in the operations of copper projects. For this reason, capital expenditures for gold and silver projects are marginal, while at the same time they present considerable dollar amounts for the coming years in terms of exports.

### **Further Information**

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**Ministerio  
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República Argentina

**Secretaría  
de Minería**