



Overview

Brazilian Nickel PLC (BRN) owns 100% of the low cost, low carbon Piauí Nickel Project (PNP) in north-eastern Brazil through its subsidiary, Piauí Níquel Metais S.A.. BRN acquired the project from Vale S.A. in January 2014.

The project resource contains 72 Mt at 1.00% nickel and 0.048% cobalt, with 73% of the resources in the JORC Measured category. An operating demonstration plant has leached 8,000 tonnes of ore in full-height heaps and has achieved first sales of nickel and cobalt products.

Geology and Resources

The Piauí deposit is a nickel laterite. The project has a JORC (2012) resource as follows:

Total Mineral Resources¹ of the Piauí Deposit at the 0.6% nickel cut-of-grade.

JORC Category	Volume ('000m ³)	Tonnes ('000t)	Ni (%)	Co (%)	Fe ₂ O ₃ (%)	MgO (%)	Al ₂ O ₃ (%)	MnO (%)	Cr (%)	SiO ₂ (%)
Measured	31,040	52,887	1.03	0.048	17.84	9.95	4.85	0.29	0.69	51.90
Indicated	11,242	19,324	0.92	0.048	18.26	10.44	4.69	0.32	0.84	50.45
Total	42,282	72,211	1.00	0.048	17.95	10.08	4.81	0.29	0.73	51.51

¹All figures in the tables are rounded, and therefore the total sums might not be the direct sum of the input figures. The Mineral Resource estimate was completed by Rory Devlin under the direction of Mick Elias. Rory Devlin and Mick Elias are employees of CSA Global. Mick Elias FAusIMM is a Competent Person as defined by the Australasian Code for the Reporting of Exploration Results, Mineral Resources or Ore Reserves (JORC Code 2012 Edition) and consents to the inclusion in the JORC report of the matters based on the information in the form and context in which it appears.

Markets

Nickel and cobalt production are targeted to be sold into new growth markets, such as lithium ion battery cathodes for use in electric vehicles, but can also serve conventional industrial needs (nickel to stainless steel, cobalt for refining to metal).

2020 Funding Completed

In December 2020 BRN completed a US\$ 27.57M equity raise to enable it to finalise the Bankable Feasibility Study (BFS) and begin construction of the PNP 1000. US\$ 25M of the funding came from the U.S. International Development Finance Corporation through BRN's funding partner TechMet Limited.

Mining

The Piauí deposit occurs as an isolated hill and the near surface ore is mineable by conventional open pit mining. The mining licence is in place.

Status

BRN has successfully completed large scale demonstration of the heap leaching, purification and recovery of nickel and cobalt from the Piauí ore. Three commercial height heaps have been operated, with target nickel extractions of >80% achieved with low consumption of acid. The downstream impurity removal precipitation circuit was continuously operated for 9 months. Nickel and cobalt hydroxide products were produced exported and sold.

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All preliminary environmental licences, Licença Prévia (LP) (awarded Jan 2020) and water extraction permits are in place. The project has good Piauí state government and local community support.



Bankable Feasibility Study

BRN has begun the final phase of a BFS on the project. Current internal company estimates indicate that the project is expected to have an all-in financing requirement of US\$ 465 million for 25,000 tpa of contained nickel and 900 tpa of contained cobalt, with production targeted for end 2024. Operating costs after refining charges and cobalt credits are expected to be less than US\$ 2.8/lb of nickel.

'PNP 1000' quick start plan

In parallel with the BFS BRN plans to expand the existing demonstration plant by a factor of 10 (approx.). This will expand the production at the demo plant to 1,400 t of Ni a year, for a capital cost of just US\$ 16 million. PNPI000 is profitable at prices above US\$ 10,400/t. This expansion can be implemented in only 12 months, without the need for any further study and using existing environmental permits, and would thus jump-start BRN's project to immediate producer status.



The Piauí Nickel Deposit

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