Submission to Emissions-Intensive Trade-Exposed Expert Advisory Committee

Emissions-Intensive Trade-Exposed definitions for Nickel Industry

Queensland Nickel Pty Ltd

12 April 2011

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EXECUTIVE SUMMARY

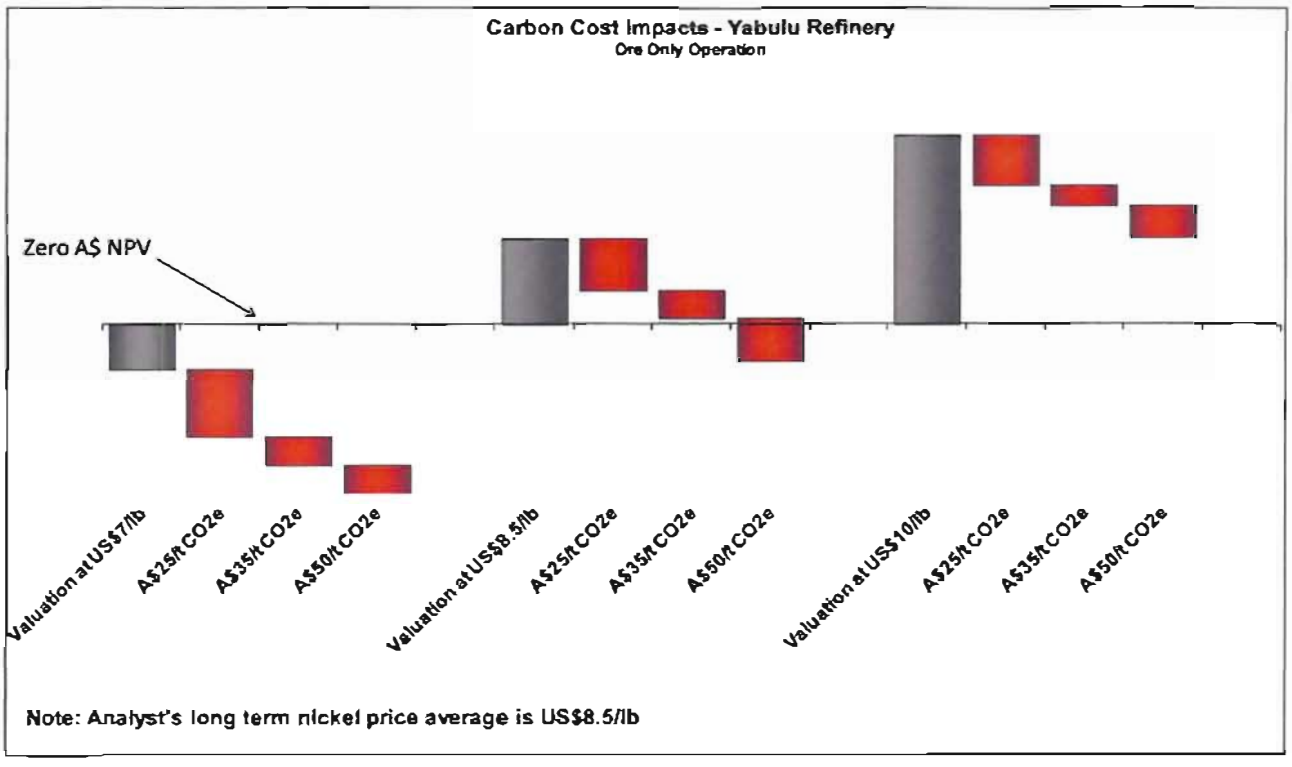
1. Queensland Nickel Pty Ltd (*QNPL*) submits that the *draft Activity Definition* for primary nickel production has been taken to such a high level that it has become an *"industry definition"* not an activity definition under the emissions-intensive trade-exposed (*EITE*) assistance program. Agglomerating several different outputs from significantly different inputs and the fundamentally different transformation processes that occur within the nickel industry is a gross oversimplification of a complex industry.

2. Two separate activity definitions (Appendix A) would accurately reflect the divergent inputs and outputs and the fundamentally different transformation processes into the different activities within the nickel industry. The divergence is real: the inputs are different and the outputs are not uniformly substitutable, being sold in different markets and having demonstrably different uses in downstream activities.

3. The draft Activity Definition is based on *technical and price substitutability*, pointing to the use of nickel briquettes and nickel compacts in the stainless steel manufacturing industry as a common destination market. QNPL does not agree that nickel briquettes and nickel compacts are practicably and uniformly substitutable. Even if substitutability was assumed for the stainless steel manufacturing industry that does not make the divergent activities conducted by the Australian nickel producers sufficiently similar to be described as one activity.

4. QNPL submits that it would qualify for the highly emissions-intensive category of assistance (using the value added method) if the activity definition is properly defined for customised nickel and cobalt products, and all other metrics for measurement of assistance are met. As such, Government assistance commensurate with carbon cost exposure would guard against carbon leakage and the loss of Australian revenue and jobs.

5. QNPL have modelled the impact of a carbon cost at 'real' (base dated January 2011) long term estimates for the nickel price excluding the impact of increased input costs in a carbon constrained economy. Nickel and cobalt prices are based on international supply and demand curves. Nickel producers are price takers and there is no capacity to pass on carbon costs. The model clearly demonstrates any carbon price would directly affect profitability and valuation. The following graph illustrates the effect of carbon costs on the net present value of the Yabulu refinery. Even at high long term nickel price valuations of US$ 10 per pound, over 50 per cent of the value of the business is eroded by carbon costs. Combinations of low nickel prices and a carbon price above A$25 per tonne CO_2-e force QNPL into negative value and losses.



6. In recent years QNPL has been focused on minimisation of emissions at Yabulu refinery and has implemented projects that have reduced emissions of approximately seven per cent in emissions intensity. However, were a carbon price introduced from 1 July 2012, there is no further speedy affordable short term emissions reductions possible, which would enable QNPL to structurally adjust to a carbon constrained economy.

7. QNPL submits that the draft Activity Definition is likely to result in EITE assistance being skewed towards production activities that are already less emissions-intensive than QNPL. Amalgamating the divergent activities of the nickel industry reflects bad policy: a policy that picks winners by providing certainty to other entities in the nickel industry but exposing QNPL through inadequate compensation. This is because by virtue of the inclusion of the highly emissions-intensive activity of QNPL, the average of the emissions-intensity for the amalgamated activities applicable to Minara Resources and BHP Billiton Nickel West (moderately emissions-intensive activities) is raised. Under the basis of allocation proposed in regulations, their least emissions-intensive activities would be over-compensated at the expense of the different activity of QNPL that has the most significant carbon cost exposure.

8. On current modelling undertaken by QNPL, QNPL will not be properly compensated. The cyclical nature of the nickel industry, and the much higher emissions profiles of international competitors producing non LME grade nickel, create a clear pathway for carbon leakage with a net effect of higher global emissions.

9. QNPL submits that to achieve consistency across Australian industries there should be more than one activity definition for the nickel transformations. Equity and precedent are supported by the multiple activity definitions for:

- transformations of iron ore and pig iron into solid carbon steel products;
- transformations of wood chips, sawdust and recovered paper;
- transformations of magnesium carbonate;
- transformations of silicon, soda ash and limestone; and
- transformations of ilmenite.

10. Divergent activities are carried on within the nickel industry, viz, the production of LME nickel and the production of customised nickel and cobalt products (nickel compacts, nickel oxide, basic nickel carbonate ($Ni_3(CO_3)(OH)_4$ (*BNC*) and cobalt oxy hydroxide) which are unique in Australia. No other Australian producer is capable of making the customised nickel and cobalt products produced by QNPL. QNPL is a uniquely emissions-intensive trade-exposed business.

11. QNPL rejects the *draft Activity Definition* for the production of nickel proposed for the *EITE* assistance program and respectfully requests that in the advice it gives to the Minister for Climate Change, Energy Efficiency and Water, the Hon Greg Combet AM MP (*Minister*), the Expert Advisory Committee recognises the different input, transformations and outputs of QNPL in a separate activity definition for the integrated production of customised nickel and cobalt products.

12. QNPL submits that a separate activity definition for the integrated production of customised nickel and cobalt products and a separate activity definition for LME nickel would result in an equitable compensation outcome and would be consistent with the principles outlined in the White Paper[1] and the Guidance Paper[2].

[1] Australian Government, Department of Climate Change 'Carbon Pollution Reduction Scheme: Australia's Low Pollution Future White Paper; (*White Paper*, 15 December 2008).

[2] Australian Government, Department of Climate Change, 'Establishing the eligibility of emissions-intensive trade-exposed activities' (*Guidance Paper*, March 2011).

1. PRINCIPLES FOR ACTIVITY DEFINITIONS

1. The following sections review the reasonableness of judgments of the Department of Climate Change and Energy Efficiency (the *DCCEE*) with respect to the principles for EITE activity definitions as outlined in the White Paper and the Guidance Paper.

2. QNPL submits that the DCCEE has not made reasonable judgments on matters of substance in proposing the draft Activity Definition.

3. Contrary to Principle 1, QNPL submits that the draft Activity Definition has been taken to such a high level that it has become an *"industry definition"* not an activity definition.

4. QNPL further submits that its activity, the transformation of imported mineralised nickel laterite ores and nickel hydroxide products into customised nickel and cobalt products (nickel compacts, nickel oxide, BNC and cobalt oxy hydroxide) is an activity *separately* eligible for assistance under the EITE assistance program as a highly emissions-intensive activity (using the value added method) within the established policy framework.

5. QNPL submits that the draft Activity Definition agglomerates several different outputs from significantly different inputs and fundamentally different transformation processes that occur within the nickel industry. This represents a gross simplification of a complex industry.

6. The divergence is real: the inputs are different, the outputs are not uniformly substitutable, are sold in different markets, and have non-substitutable different uses in downstream activities.

7. The draft Activity Definition misapplies, and makes unreasonable judgements in relation to, the six principles set out in the White Paper and the Guidance Paper in a manner that brings about an inequitable outcome. In particular, and in breach of Principle 4, it is inequitable and inconsistent with precedent for other activities within industries.

8. QNPL submits that separate activity definitions for the production of LME nickel and the integrated production of customised nickel and cobalt products will appropriately give effect to the objectives of the Australian Government, and avoid carbon leakage and a net global increase in greenhouse gas emissions. Such definitions would achieve equitable outcomes and be consistent with the six principles set out in the White Paper and the Guidance Paper.

1.1 PRINCIPLE 1: INPUTS TO OUTPUTS

> *An activity consists of the chemical or physical transformation of inputs to produce a given set of outputs – the identification of inputs and outputs seeks to ensure uniformity of treatment within and between entities conducting activities.*[3]

9. The recommendation which is made to the Minister, and the activity definition which is approved by the Minister, must be targeted to the *activity* level. Eligibility is properly assessed and the EITE assistance provided at the activity level.

10. The White Paper recognises the challenges involved in providing EITE assistance on an activity basis, but was very clear that the EITE assistance program is about *activities*, it is not an industry, company or facility level program.

> *The description of an activity must have a clear starting point (which is the defined input or inputs that are used for the physical or chemical transformations) and a clear end point at which an output is produced.*[4]

11. To properly and robustly define activities, it is important that descriptions are not so general so as to be meaningless, nor so specific that they are merely individualised descriptions. An activity definition should only include many final outputs if all of them are so similar that they could only have been produced by that activity (assuming the activity properly defines the transformations).

12. An activity definition should reflect the uniqueness of the transformations and the sameness of the outputs to meet Principle 1.

13. Similar to many other industries in Australia, customer preferences, pressures and competition for business drive the output offering (the range of product choices) of the nickel industry in Australia. QNPL customers are offered choice including nickel compacts, nickel oxide, BNC and cobalt oxy hydoxide, with the production designed for full flexibility to supply as much of each product as suits the demand (further detail on this is provided in QNPL's submission to Senator the Hon Penny Wong, the former Minister in July 2010 (attached as Appendix B).

14. QNPL contends that it cannot be said that the different outputs of the nickel industry are produced using the same activity.

15. The physical and chemical transformation of mineralised nickel ores and nickel intermediate products into customised nickel and cobalt products does *not* give rise to equivalent outputs as are produced in the production of LME grade nickel briquettes. *QNPL cannot make products sold by Minara Resources and BHP Billiton Nickel West.*

[3] Ibid.
[4] Ibid.

16. Conversely, the physical and chemical transformation of mineralised nickel ores and nickel matte into nickel briquettes does *not* give rise to equivalent outputs as are produced in the production of QNPL products. *Minara Resources and BHP Billiton Nickel West cannot make QNPL products.*

17. The activity (transformation processes) of QNPL is significantly different from the activity of other entities in the Australian nickel industry. Key differences include:

- feedstock;
- inherent energy embodied in the nickel ore delivered into the transformation process;
- flexibility to produce alternative outputs;
- flexibility to adjust the output mix to customer demand;
- emissions intensity in the transformation processes;
- embedded technology differences; and
- acceptance of intermediaries as feed to the transformation processes.

18. The outputs of QNPL are significantly different from the outputs of other entities in the Australian nickel industry in terms of:

- inability to meet the ASTM specification;
- metal and impurity concentrations and shape;
- chemical composition of the primary nickel constituent;
- marketability, market recognition and price;
- market destinations; and
- downstream uses and final uses.

19. The DCCEE states that the underlying emissions-intensive transformation that is in common between all entities in the nickel industry and therefore sets the basis for the draft Activity Definition is "the emissions-intensive transformation of extracting impurities from nickel ore to produce final nickel products."

20. **The draft Activity Definition has been taken to such a high level that it has become an industry definition, not an activity definition**.

21. Co-joining the outputs of nickel briquettes, nickel compacts, nickel oxide and BNC, all generically described as the final nickel products, **is not reflective of the international and Australian reality of the *activities* undertaken within the nickel industry and the distinct readily marketable *outputs* of the industry**.

21.1 ASTM specification

If nickel is 99.8 per cent or greater in concentration it will meet ASTM specification required for acceptance as a LME deliverable. BHP Billiton Nickel West and Minara Resources need to maintain this compliance to maintain market acceptance as LME deliverable nickel and hence the associated product value.

QNPL nickel compacts, nickel oxide and BNC do not meet the ASTM specification and therefore cannot participate in the LME based market place.

QNPL does not produce this grade nickel. Its market has and always will be customised niche market products that do not meet ASTM standard or the LME standard.

21.2 Metal and impurity concentration

The concentration of nickel and other compounds in the products produced by the nickel industry is different in each product.

The table below illustrates the typical concentrations of the elements in the QNPL customised nickel products alongside the specification for LME grade nickel products.

	(Typical % dry wt)			
Element	BNC	NiO	Ni Compacts	LME Spec. for Ni
Ni	50.5	78	99	=99.8
NiO	Trace	99.9	>0.5	
Co	0.03	0.03	0.06	<0.15
Al	0.01	0.02	0.02	
C	S	0.01	0.01	<0.03
Ca	0.02	0.03	0.03	
Cr	0.001	0.001	0.001	
Cu	0.005	0.01	0.01	<0.02
Fe	0.01	0.02	0.02	<0.02
Mg	0.02	0.04	0.04	
Mn	0.03	0.06	0.06	<0.005
S	0.05	0.005	0.02	<0.01
Si	0.03	0.04	0.05	<0.005
Zn	0.005	0.01	0.01	<0.005

21.3 Chemical composition of the primary nickel constituent

QNPL nickel compacts are produced through a series of transformations of nickel from carbonate through to oxide and finally to a majority of metal constituent; however there is more than 0.5 per cent nickel present as nickel oxide in the final product, and up to five per cent. LME grade nickel briquettes are produced from the compression and sintering of pure nickel

powder; therefore nickel oxide is not present from the transformation process.

In order to demonstrate the impact of this significant difference in product compositions, QNPL products are now progressively becoming excluded from the markets of the European Union. The inherent nickel oxide content has resulted in nickel compacts being classified as a class 2 carcinogen according to the regulations of REACH. LME nickel has been classified as a class 1 carcinogen.

21.4 Shape

Nickel briquettes and nickel compacts have different shapes. The nickel compact is a recognisable product within the nickel industry but is not part of the LME specification. The nickel briquette shape is part of the standard specification under the LME requirements.

21.5 Marketability and market recognition

In the international market-place the differences between the products of the Australian nickel industry are well recognised. The distinctions accord with custom and usage in the international nickel industry. QNPL compacts are a recognisable participant in the nickel market however they are recognised in the market as being distinctly different to LME nickel briquettes (and for some applications, less desirable).

No customer comes to QNPL seeking LME nickel product. The QNPL market has and always will remain sub LME, focussed instead on customised nickel and cobalt products which are used by our customers in a wide range of downstream industries.

QNPL earns Australia substantial export revenue from its activity and maintains an excellent international customer base for its products. QNPL is the only place the international client base can come to in Australia for QNPL customised nickel and cobalt products. QNPL is unique in Australia in attracting this customer base, because the inputs and transformation process employed by QNPL are completely different to other Australian nickel industry participants.

21.6 Market destinations

QNPL products are not deliverable against LME nickel contracts accepted by LME warehouses and traders. Therefore customers must be directly sourced, and product directly shipped to them.

Only LME nickel is accepted at the LME warehouse. LME nickel is a traded commodity. If LME nickel is not used after purchase it can be sold backwards and forwards into the LME warehouses.

QNPL products are not deliverable against LME nickel contract[5] and therefore no terminal market exists for these products. As a result these products are not considered by the market as "commodity nickel." Traders and some end user customers are already reluctant to buy QNPL products due to the lack of liquidity or inability to sell these products back to the market. The increase in price for these products that a carbon cost will cause, particularly if QNPL is under compensated in the EITE assistance program, will add further to this buyer reluctance.

As mentioned above, QNPL products are also progressively becoming excluded from the markets of the European Union due to their inherent nickel oxide content.

[5] QNPL recognises that trading of nickel forms a significant and important part of the nickel market and LME deliverable nickel products play an important role in this part of the market. However, QNPL nickel products are considered "a product" not "commodity nickel" and therefore must be sold directly to customers and do not play any part of the trading of nickel.

21.7 Downstream uses

Not all of the downstream uses of all of the products of the nickel industry are identical. The following table shows where the split of nickel and associated products of the nickel industry are used.

Supplier	Product	Key difference	Key markets
Queensland Nickel Pty Ltd (QNPL)	Nickel compacts QNPL compacts (not LME) • lower purity (0.5%NiO) • lower Ni % (99% Ni) grade[6]	Casting and foundry, not alloys. Consumed in melting applications only Bulk addition into stainless steel **Nickel West and Minara cannot make this product**	Asia
Nickel West Pty Ltd (NiW) and Minara Resources	Nickel briquettes • complies with ASTM B39-79 • higher purity and Ni % (>99.8%)	LME nickel – Alloys - not casting and foundry **QNPL cannot make this product**	Global
NiW	Nickel Powder (coarse) (>99.8% Ni)	Coatings and welding. Not stainless steel **QNPL cannot make this product**	Global
QNPL	Nickel Oxide: Intermediate; granular; and powder (78%Ni) Product of Caron process. QNPL the only Australian NiO producer.	• Electronic application - Ni-Zn ferrites production • Colour/pigment application – pigments for plastic and glass • Frit application – pre-coat for porcelain enamel coating of steel • Production of nickel metal **Nickel West and Minara cannot make this product**	Asia
QNPL	Basic Nickel Carbonate (50% Ni) Nickel Intermediate. Competes with Niquelândia (Brazil) energy intensive process Ni metal in NiCO3	• Catalyst application – desulphurisation of petroleum products • Plating application – bath additive • Rechargeable batteries – cathode material for Lithium Ion batteries **Nickel West and Minara cannot make this product**	Asia, USA
QNPL	QNPL cobalt Cobalt Oxy-Hydroxide (66% Co) competes with energy intensive Co metal and Co3O4 processes	• Electronic application – cathode (LICoO) in rechargeable batteries • Colouring / coating – pigments for plastic and glass • Catalyst – Co-Mn-Acetate plastic bottle manufacture • Magnet – hard ferrite magnet production • Hard metal/diamond tool – production of extra fine Co powder **Nickel West and Minara cannot make this product**	Asia
Minara	Cobalt briquettes and powder (>99.8% Co)	Dissolution - cobalt chemicals used in batteries and other applications Not pigments and colours. Energy intensive lifecycle. **QNPL Cannot make this product**	Global

[6] QNPL nickel compacts are on average one per cent lower in nickel content than nickel briquettes produced by Minara Resources and BHP Billiton Nickel West, due primarily to their oxide content.

21.8 Price

The prices of nickel products are correlated but follow parallel price points tracking with the LME nickel price. LME nickel is generally priced at a premium to customised nickel products. Further detail on price differences is provided in Appendix B.

21.9 Feedstock

The products in the nickel industry are sourced from either sulphide ores or laterite ores.

QNPL exclusively imports the limonite portion of tropical laterite deposits from overseas suppliers. There is no similar processing route to QNPL's anywhere else in Australia and furthermore no ores transformed by any other Australian nickel producer are suitable for transformation within the QNPL activity.

21.10 Inherent energy embodied in the nickel ore delivered into the transformation process

Sulphide ores allow for processing in fully autogenous or semi-autogenous smelting i.e. the sulphide in the mineralisation provides for some or all of the energy requirements in the smelting step of the process. Sulphide ores inherently require much less energy to liberate the nickel contained in the ore.

Lateritic ores, through their mineralisation being essentially weathered iron hydroxide in a clay matrix, require the addition of significant levels of energy whether they be transformed in the manner in which Minara Resources does or as QNPL practices to achieve the same goal.

21.11 Flexibility to produce alternative outputs

QNPL has flexibility to make different products. The transformation of the limonite nickel ore by QNPL through the modified Caron process and other patented processes allows QNPL, uniquely, to change the type and volume of output(s) through its transformation of precipitated BNC through to nickel oxide or nickel compacts that contain up to five per cent remnant nickel oxide.

Minara Resources and BHP Billiton Nickel West use the Sheritt Gordon refining process, with the only nickel output being LME nickel briquettes or powder produced by the precipitation of pure nickel powder under pressure from nickel ammonium sulphate solution.

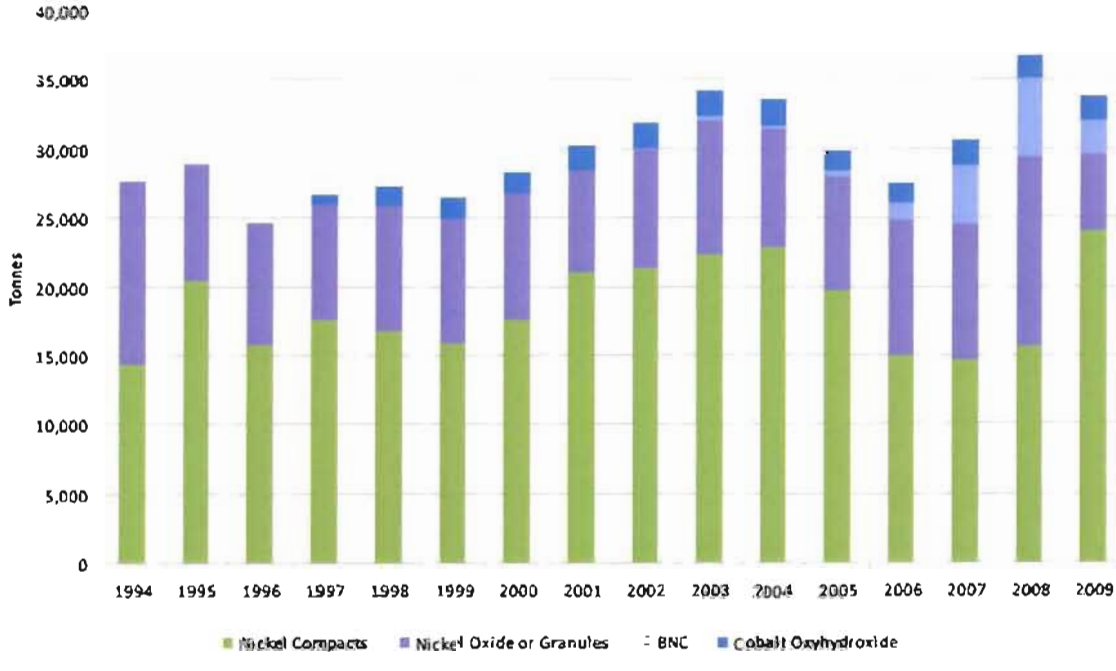
Accordingly, QNPL's flexibility is a function of both input and the transformation.

21.12 Flexibility to adjust the output to customer demand

The flexibility of QNPL to produce nickel compacts, nickel oxide (of varying physical and chemical properties) and BNC permits QNPL to adjust the production of its suite of outputs to suit customer demands and requirements. Subject to customer demand, QNPL is able to flex its processes to make exclusively nickel compacts, or exclusively nickel oxide (of varying physical and chemical properties) and/or BNC through diversion of any of these streams from various points in the progressive transformation process.

Minara Resources and Nickel West can only make LME nickel briquettes and powder[7] from their transformation processes. Further, the other producers cannot adjust production of one product over another.

The following graph shows the output product mix of QNPL over the period 1994 to 2009.



21.13 Emissions intensity in transformation processes

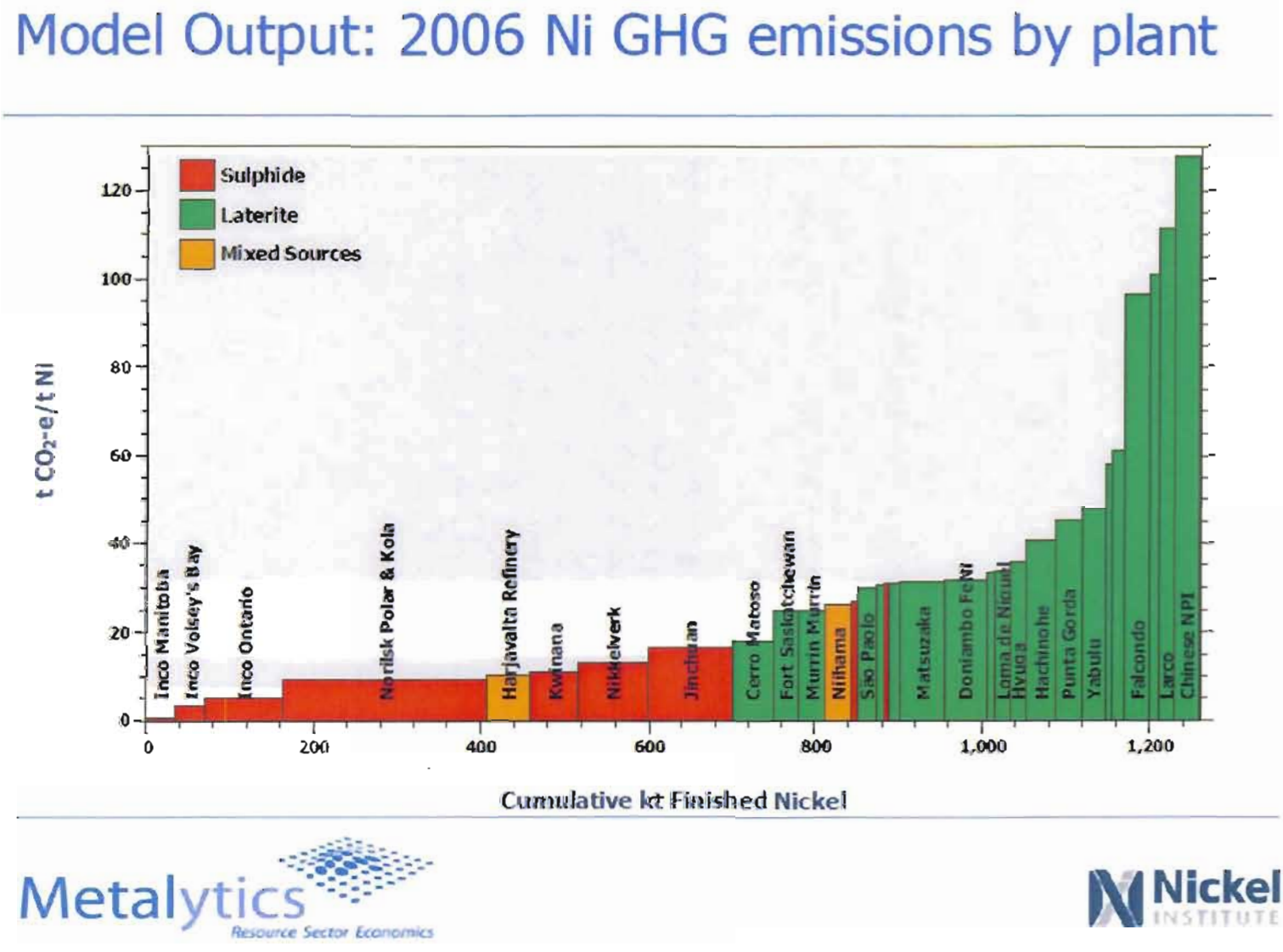
Analysis by QNPL of its transformation processes and modelling performed for the purposes of the EITE assistance program reveal that the activity of QNPL is a highly emissions-intensive activity (applying the value added method).

The emissions intensity for the production of LME nickel is significantly different to the emissions intensity of the production of customised nickel and cobalt products.

The following graph depicts the disparate emission profiles of these activities i.e. nickel sulphide processing inherently requires significantly lower energy

[7] Minara Resources produces Cobalt briquettes as a by product.

intensity with all sulphide producers to the left and all laterite processing producers to the right. The graph also shows QNPL's GHG profile (indicated as Yabulu on the graph) is modest compared to many alternative laterite based producers.



Source: Nickel Institute

The higher emissions intensity of processing laterite ore constrains potential to meet the policy intent of the basis of allocation under the draft Activity Definition because the production of customised nickel and cobalt products could never reduce to the emissions intensity of processing nickel sulphide ores.

21.14 Embedded technology

The technology and processes designed for Yabulu are locked in by the input chemistry and output characteristics. The workforce of almost 900 directly employed persons, are trained in the Caron process and other patented technologies of QNPL. It is unrealistic to expect that the imposition of a

carbon pollution reduction scheme or similar carbon price framework would lead to QNPL quickly changing the basis of its technology should its profitability be driven more quickly to the point whereby it was no longer viable. Such economic outcomes would lead to the plant's closure, not to its restructuring utilising a different technology.

21.15 Acceptance of intermediaries

QNPL's transformation processes permit it to accept mixed hydroxide product (MHP) as an intermediate product. The different chemistries at each of the Australian nickel refiners preclude interchange of intermediaries between the different processes.

22. QNPL submits that all of the above factors limit the practical substitutability of nickel products *and* demonstrate that the activity of QNPL is very different to the activity of Minara Resources and BHP Billiton Nickel West.

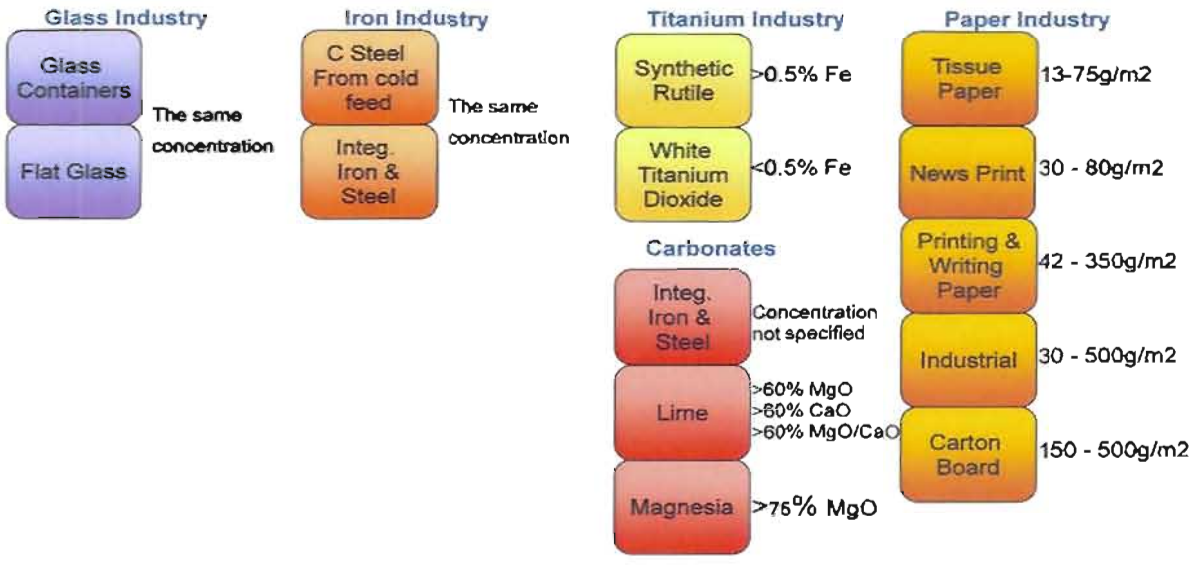
23. Given that the transformation activities and resultant outputs of QNPL are different from the other Australian refineries as outlined above, only separate activity definitions are able to achieve "uniformity of treatment within and between entities conducting activities."

24. By ignoring the differences in the inputs, transformations and outputs within the different activities that make up the nickel industry, the draft Activity Definition would truly treat different activities as if they were the same, indicating an industry definition, rather than an activity definition. The application of Principle 1 should not bring about an unfair and inequitable result out of alignment with the White Paper and the EITE Guidance Paper principles.

25. Further, the correct application of Principle 1 should not depart from precedent, and be inconsistent with the treatment afforded activities of other entities in the Australian economy, for example, as in the multiple activity definitions for:

As the following diagram illustrates, Principle 1 permits separate activity definitions for different types of output distinguished by concentration specified (inter alia) in the activity definitions for:

- transformations of wood chips, sawdust and recovered paper;
- transformations of magnesium carbonate; and
- transformations of ilmenite.



Substitutability of nickel briquettes and nickel compacts

26. The DCCEE argues that nickel briquettes and nickel compacts are substitutable. The alleged substitution *possibilities* are used to support the DCCEE's view that "the primary nickel products produced by the industry" are to be treated as "a single set of outputs."[8] The DCCEE asserts there are demand and supply side substitution possibilities, and technical and price substitutability. In support, the DCCEE points to the stainless steel manufacturing industry as a common destination market, and the use that can be made there of nickel briquettes and nickel compacts.

27. QNPL does not agree that nickel briquettes and nickel compacts are practicably and uniformly substitutable. The DCCEE states in its explanatory paper "Nickel Production under the EITE principles" that "the technical and price substitutability of nickel compacts and nickel briquettes has been confirmed by information provided by both QNPL and BHP." QNPL did not confirm any such information and disagrees with both points made by the DCCEE.

28. QNPL submits that, in normal markets, substitution opportunities are actually minimal. If substitution occurs, QNPL submits it would represent approximately five per cent of the total Australian nickel production and therefore could not be truly described as highly substitutable.[9]

29. Even assuming substitutability, QNPL submits that the White Paper and the Guidance Paper do not support a determination that turns different transformations of different nickel ores into many outputs (co-joined in the plural "primary nickel products") into a singular activity.

30. QNPL further submits that price correlation is an irrelevant consideration. The prices of nickel products are correlated but follow parallel price points tracking

[8] DCCEE, 'Nickel Production under the EITE principles' (Explanatory Paper, February 2011).
[9] Appendix B.

with the LME nickel price. The prices follow a similar trend, but it is the consistent difference in the price points between the products that is relevant and demonstrates the limits of substitutability.

31. Multiple activity definitions cover the production of outputs substitutable in several other industries, as the following examples demonstrate:

31.1 Carbon steel from cold ferrous feed and Integrated iron and steel

The activity definitions for "Carbon steel from cold ferrous feed" (Guidance Paper, activity 5.5) and "Integrated iron and steel" (Guidance Paper, activity 5.13) are separate activity definitions for one identical product, defined as "solid carbon steel products."

The activity definition for integrated iron and steel provides an allocative baseline for lime production notwithstanding it is covered separately in the activity definition for "Lime" (Guidance Paper, activity 5.15).

31.2 Lime and Magnesia

Lime (calcium oxide) and magnesia (magnesium oxide) are defined as outputs in three separate activity definitions.

The "Lime" activity definition (Guidance Paper, activity 5.15) converts calcium and/or magnesium sources (such as $CaCO_3$ or $MgCO_3$) via calcining into calcium oxide (> 60%), calcium oxide and magnesium oxide (> 60%) or magnesium oxide (> 60%).

The activity definition for integrated "Integrated iron and steel" (Guidance Paper, activity 5.13) has a baseline allocation for the production of lime (from limestone) with undefined grades, provided it is suitable for the process.

"Magnesia" activity definition (Guidance Paper, activity 5.16) converts magnesium carbonate to caustic calcined magnesia (magnesium oxide) (>75%).

The lime (from "Integrated iron and steel" activity definition) and caustic calcined magnesia (""Magnesia" activity definition) outputs, have been described by the "Lime" activity definition, however they have different allocative baselines. The products are substitutable because integrated iron and steel producers could purchase lime made under the activity definition 5.15; and caustic calcined magnesia could be used instead of lime for neutralisation.

31.3 Titanium Dioxide

There are two activity definitions for titanium dioxide – "synthetic rutile" (Guidance Paper, activity 5.30) and "white titanium dioxide pigment" (Guidance Paper, activity 5.31). Synthetic rutile is used predominantly for the production of white titanium dioxide pigment and to a small extent titanium metal. Therefore the end use of the both products is the same. Furthermore

the chemical difference between the two products can be similar, with the iron specification for white titanium dioxide as less than 0.5%, and for synthetic rutile greater than 0.5%. The pigments must meet ASTM specifications to meet the activity definition. It has been recognised that despite the same end use and chemical similarities, that two activities are undertaken.

31.4 Paper

Paper and Pulp have six activity definitions to recognise the different types of paper products produced:

- newsprint (Guidance Paper, activity 5.21);
- packaging and industrial paper ((Guidance Paper, activity 5.22);
- cartonboard ((Guidance Paper, activity 5.23);
- printing and writing paper ((Guidance Paper, activity 5.24);
- dry pulp (Guidance Paper, activity 5.25); and
- tissue paper (Guidance Paper, activity 5.26).

Futhermore, it has been recognised that the emission differences between pulp from recovered paper and that from wood chips and sawdust (Guidance Paper, activity 5.21) are significant enough that they require separate allocative baselines.

32. Substitution cannot convert into the one activity the different transformations of different nickel ores into all the distinct outputs.

33. QNPL recommends separate activity definitions to recognise the differences in the transformations of inputs to different outputs and describe the production of LME nickel and the integrated production of customised nickel and cobalt products.

1.2. PRINCIPLE 2: TECHNOLOGY NEUTRAL

34. The construct of the separate activity definitions recommended by QNPL (Appendix A) does not rely on technology or age of plant differences.

35. QNPL submits that the classification of activity as "highly emissions-intensive" or "moderately emissions-intensive" for EITE assistance is reflective of a recognition that in many industries it would not be possible to drive the production of outputs towards a reduced emissions intensity except over a very long timeframe.

36. Emissions from the integrated production of customised nickel and cobalt products cannot reduce to the emissions intensity achievable by processing a nickel sulphide ore, because the laterite ore type requires a higher emissions intensity to bring the metal into its metallic state. Research by Eckleman (2010) and Mudd (2009, below) support this observation.

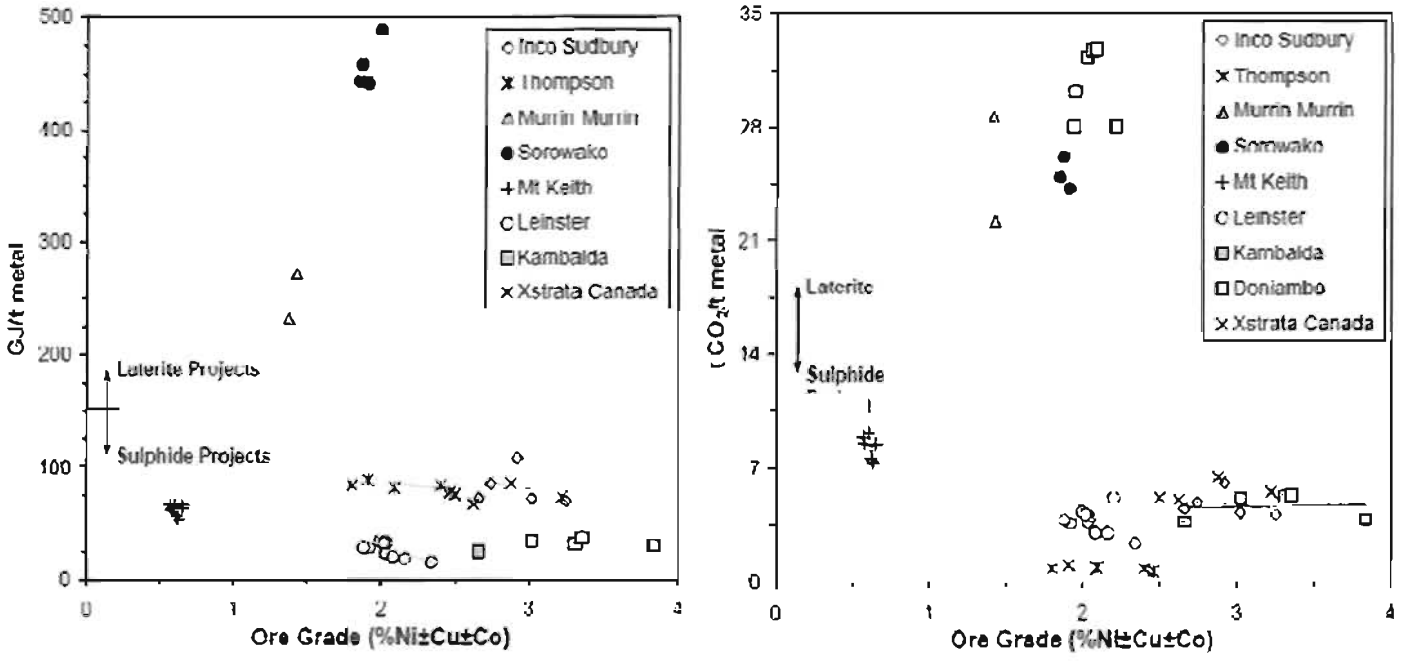


Figure 2 Unit energy and carbon dioxide costs with respect to ore grade (%Ni±Cu±Co) (approximate linear trend lines include for some series)

37. INSG data indicates that 75 per cent of the world's nickel ore reserves are laterite deposits. Sulphide deposits are rapidly diminishing. Sulphide deposits are easier to exploit from a technical point of view; however they are a depleted resource and unlikely to be available to anything other than a significantly diminished extent in the future.

38. The implication of this is that the overseas production picture will continue to move more towards laterite feedstock with higher emissions profiles. The net effect of this will be that **(under a single activity definition) QNPL would receive EITE compensation based on predominantly sulphide based**

emissions profiles, while competing with laterite based refiners overseas who will not be paying a carbon price for the foreseeable future. In these circumstances the pathway to carbon leakage is clear and foreseeable.

1.3. PRINCIPLE 3: IMPACT ON INVESTMENT, LOCATION AND STRUCTURE

39. In the event that differentiated activity definitions for LME nickel and customised nickel and cobalt products were to be established, the intended policy outcome effect would still be achieved, that is, to reduce carbon emissions.

40. The White Paper explanation of Principle 3 confirms that it is directed to how the design of an activity definition ought to influence the other business investment, location and structure decisions that an enterprise may make. However it is also clear that the principle must be subject to the overall policy thrust of the EITE assistance program, and therefore, be subservient to, rather than frustrate the achievement of, the policy.

41. QNPL submits that the DCCEE has incorrectly weighed the influence of Principle 3 in its deliberations. The fact that the activity definition, properly drawn, describes an activity that is emissions-intensive, is not a reason for redesigning the activity definition. **Principle 3 does not enunciate a policy that highly emissions-intensive activities are to be avoided in preference to moderately intensive activities.**

42. The fact that activity definitions for other transformations of inputs to outputs that occur throughout the economy have resulted in a highly emissions-intensive characterisation demonstrates this. The decision by the Government in November 2009 to treat the activities of the manufacture of solid carbon steel products from the transformation of cold ferrous feed and from the transformation of iron ore as equally highly emissions-intensive is further evidence of the correct application of the policy.

43. Further, the EAC will appreciate that compensation at 94.5 per cent is not sufficient to overcome the market signals which dictate QNPL's production and product mix, which are in any case set by the demands of its customers. While receipt of a greater degree of compensation would reduce some of QNPL's vulnerability by lowering the company's immediate carbon cost exposure, this would not change the products or product mix of QNPL as these are set by the market and customer requirements.[10]

44. The DCCEE asserts that separate activity definitions "would create incentives for business investment and/or production to flow toward the activity receiving the higher allocation." However this can be said equally of each of the other highly emissions-intensive activity definitions – by their very nature they will provide some incentive, because the level of assistance is higher.

45. QNPL submits that it is would not be possible for Minara Resources ore sources and BHP Billiton Nickel West ore sources to produce any of the outputs

[10] Refer to Appendix B for tables illustrating over a 15 year period, the extent to which QNPL's product mix is entirely a function of customer demand.

currently produced by QNPL, using their current inputs and transformations. The nickel transformations processed by them does not carry oxygen (oxides) through the process, hence the reason they commit to produce LME nickel. QNPL submits that if Minara Resources and BHP Billiton Nickel West do produce nickel briquettes that do not meet the ASTM standard, then this occurs in inconsequential volumes as a failure of their production processes. (In these circumstances product can either be reintroduced into the process or more likely sold in circumstances where significant discounts are demanded). Separate activity definitions would be insufficient incentive for them to abandon their current investments, inputs and processes and establish a Caron process.

46. A real risk and consequence of elevating Principle 3 as a reason for not creating a highly emissions-intensive activity definition may be that the failure to provide adequate assistance actually defeats the policy intention of the EITE assistance program (White Paper, policy position 12.1).

47. Formally recognising in the EITE assistance program that the production of customised nickel and cobalt products is an activity different to production of LME nickel will minimise the influence of the activity definition on the business investment, location and structure of QNPL, whilst exerting negligible influence on the business investment, location and structure of each of Minara Resources and BHP Billiton Nickel West.

48. Perversely, in the event of QNPL's closure, Australian taxpayers would continue to fund compensation for the two remaining nickel refineries at the threshold intensity established at the commencement of the EITE assistance program, because the two remaining nickel refineries will have benefited from the inclusion of QNPL in the activity definition notwithstanding that the policy resulted in the company's ultimate demise due to under-compensation.

49. QNPL is the only entity producing customised nickel and cobalt products in Australia (nickel compacts, nickel oxide, BNC and cobalt). QNPL's products compete in the international market with nickel manufacturers from countries that do not currently price carbon, and that will not price carbon for many years into the future.

50. Two activity definitions would not cause an Australian producer to change its outputs in order to take advantage of more generous compensation arrangements. QNPL's non LME nickel compact has the characteristic that its main impurity is nickel oxide, which is not undesirable in stainless steel production, whereas a 98.5 per cent nickel briquette embodying sulphides as an impurity, would be unsuitable for the stainless steel manufacturing process.

51. The draft Activity Definition proposed by the DCCEE does not properly align QNPL's carbon cost exposure with the pricing of activities undertaken by its true competitors, nickel producers in Cuba and the Philippines and Chinese nickel pig iron producers. Accordingly, if the draft Activity Definition for nickel remains unaltered, QNPL would not receive adequate assistance to compensate it and maintain prices for its Australian export products in the international market place. The following table shows the producers that are directly competitive with QNPL for market share:

Name	GJ/t	CO2 t/ t Ni	Location	Products (Ni t)
QNPL	513 (2010)	38.5 (2010)	Australia	5 kt NiO/ 24 kt Ni/ 0.5 kt BNC and 1.8 kt CoOOH
Punta-Gorda	562	41	Cuba	31.5 kt Ni/NiO
Nicaro	853	62	Cuba	23 kt Ni/NiO
Niquelandia	507	41	Brazil	17.5 kt BNC

QNPL is significantly less emissions intensive than its competitors.

1.4. PRINCIPLE 4: CONSISTENCY AND EQUITY

52. An important dimension of Principle 4 is that the Government intended that EITE assistance should deliver equitable and "consistent treatment of activities." As the White Paper and the Guidance Paper make very clear, the EITE assistance program is about activities, it is not an industry, company or facility level program.

53. Whilst it may be the case that a definition of an activity and a definition of an industry might be identical, the draft Activity Definition confuses the activities that are carried out within the nickel industry. The draft Activity Definition defines the industry, encompassing many different activities and outputs in too broad a manner.

54. The activity definition should define the activity – the transformation of inputs to output. This is because the EITE assistance is to be based on the average of the emissions intensity of the entities carrying out the relevant activity, not on the emissions intensity of an industry carrying out many activities.

Equity

55. The policy intent of the EITE program is to direct assistance to Australian businesses based upon their emissions intensity matched against the parameters of that assistance program. An equitable outcome should see activities which are highly emissions-intensive qualifying for the maximum assistance that the EITE program provides.

56. QNPL submits that the draft Activity Definition would not result in equitable outcomes because QNPL would be grossly under compensated and Minara Resources and BHP Billiton Nickel West, in particular, over compensated, in relation to their emissions-intensity.

57. The windfall gains policy, designed to prevent companies receiving more than 100 per cent of permits in free allocation from the Government will not operate as intended. There is no means of enforcing windfall gains policy when boundaries of EITE activities occur within the boundaries of reporting entities under the *National Greenhouse and Energy Reporting Act 2007* (Cth) (*NGER Act*) which carry on a combination of EITE and non-EITE activities. QNPL asserts that the outcome of the draft Activity Definition provided by the DCCEE is that windfall gains to BHP Billiton cannot be avoided under the EITE regulations as they are currently proposed.

58. QNPL developed models to quantify the impact of the draft Activity Definition provided by the DCCEE. The models indicate that the three entities in the nickel industry would receive assistance in highly inequitable proportions relative to their emissions liabilities:

- QNPL would be entitled to approximately 417,000 permits or 30 per cent of its projected liability in assistance;

- Minara would be entitled to approximately 435,000 permits or 76 per cent of its projected liability in assistance; while
- BHP Billiton would be entitled to approximately 1,008,000 permits or 112 per cent of its liability in assistance.

59. The formula proposed in Clause 906 (and following) of the draft EITE regulations released in December 2009, does not sufficiently ring-fence assistance to only the EITE activities of a facility, thereby potentially under-allocating free emissions units to QNPL, whose emissions intensity is above the industry average, and over-allocating to the other nickel refineries.

60. BHP Billiton's Leinster and Mt Keith operations, which include extraction (not an EITE activity) and concentration of ore (part of the draft Activity Definition), report their liability as part of their controlling corporations group for the *NGER Act*. There is no proposed ongoing assessment of the emissions included in the EITE activity definitions that would allow for the implementation of the windfall gains policy in such cases.

Consistency

61. Analysis undertaken by QNPL and referenced throughout this submission proves that separate activity definitions would be consistent with the Government's approach to already published activity definitions.

62. In this regard, the activity definition for "Aluminium" was cited by the DCCEE as having similar issues with different products as outputs from each of the smelters. QNPL refutes that aluminium is a relevant precedent as all aluminium outputs as defined at the end point of the aluminium activity definition are identical. Different product standards apply to the finishing processes that provide alloys and special products for the market however the product at the end of the activity definition is identical in all cases.

63. Establishing a separate activity definition for the integrated production of customised nickel and cobalt products is not inconsistent with the precedent activity definitions already established by the DCCEE.

64. The table on the following page illustrates the number of published activity definitions where activities have been separated on a range of factors, precedent for nickel activities.

Activity	Products	Specifications				Finished Product	Markets
		Chemical	Impurities	Physical	Other		
Titanium [Titanium Dioxide?]							
5.3 Synthetic Rutile	Synthetic Rutile	>88%, <99.5% Ti	Fe >0.5%	x	x	x	White TiO_2 pigment manufacture (see below) Ti metal
5.31 White TiO_2 pigment	White TiO_2 pigment	ASTM	Fe <0.5%	x	x	✓	Paint, sunscreen etc
Carbon Steel							
5.13 Integrated Iron & Steel	Carbon steel	Fe major component	<2% C	✓	x	✓	Carbon steel products
	Sinter	x	x	✓	x	x	Feed to make iron
	Pellets	x	x	✓	x	x	Feed to make iron
	Lime	x	x	x	x	✓	Chemical, Water Treatment, Fertilisers
5.35 Carbon steel from Cold ferrous feed	Carbon steel	Fe major component	<2% C	✓	x	✓	Carbon steel products
Paper and Pulp							
5.27 Tissue Paper	Tissue Paper	x	4-10% H_2O	uncoated	13-75 g/m^2	✓	facial tissues, paper towel, napkins
5.25 Printing and Writing Paper	Printing and Writing paper	x	4-10% H_2O	coated or uncoated	42-350 g/m^2	✓	copy paper, magazine paper, envelope paper etc
5.23 Packaging and Industrial Paper	Industrial/ Packing Paper	x	4-10% H_2O	uncoated	30-500 g/m^2	✓	Kraft liner, sack and bag paper, wrapping paper, recycled or multiply liner
5.24 Carton Board	Carton Board	x	4-10% H_2O	coated	150-500 g/m^2	✓	Coasted Kraft liner, coated multiply & other coated paper board
5.23, 5.24, 5.25, 5.26,5.27,	Air dried pulp	x	x	x	x	x	Paper production
5.26 Dry Pulp	Dry Pulp	x	4-14% H_2O	x	x	x	Paper manufacturing, fluff pulp production
5.22 News Print	Air dried News Print	x	6-11% H_2O	uncoated	30-80 g/m^2	✓	Newspaper products
	BDT pulp from wood	x	x	x	x	x	Paper production
	BDT pulp from recovered paper	x	x	x	x	x	Paper production
Glass							
5.9 Flat Glass	Flat Glass	x	x	✓	x	✓	Wired & Patterned glass
5.11 Glass Containers	Glass Containers	x	x	✓	x	✓	Variety
Carbonates							
5.15 Lime	CaO and / or MgO	CaO and or MgO >60%	x	x	Saleable Quality	✓	Chemical, Water Treatment, Fertilisers
5.14 Integrated Iron & Steel	Lime	x	x	x	Requirements to meet the process	✓	Chemical, Water Treatment, Fertilisers
5.16 Magnesia	CCM	MgO >75%	x	x	650°C-1200°C	✓	Chemical, Water Treatment, Fertilisers, fused magnesia
	DBM	MgO ≥ 85%	x	x	1450-2200°C Grain density 3.00 g.cm^{-3}- 3.45 g.cm^{-3}	✓	Refractory Bricks
	EFM	MgO ≥ 90%	x	x	1450-2200°C Grain density> 3.45 g.cm^{-3}	✓	Refractory Bricks

1.5. PRINCIPLE 5: CONSIDER INTERMEDIATE INPUTS

65. A unique feature of QNPL's production process is its ability to introduce MHP into its production of customised nickel and cobalt products.

66. Save for MHP, the intermediate products in all nickel ore transformations within the nickel industry are physically and chemically different and not cross-transferable between activities.

67. There is no scope for windfall gains from substitution of brought-in inputs. Two activity definitions will appropriately encompass intermediaries in the nickel industry and will not create the risks to which Principle 5 is directed.

68. The transformation processes involved in the production of nickel are very different to copper.[11] QNPL refutes that copper is a relevant precedent for nickel intermediaries.

69. The activity definition for "Copper" is a single activity definition using two baselines, one for copper anode and one for copper cathode. The choice of feedstock and technology by entities producing copper governs whether they produce anode copper and/or cathode copper. Smelting of copper sulphide feedstock produces copper anode, which is subsequently refined into copper cathode via electro-refining. Leaching of copper oxide and copper oxide/sulphide ores is able to produce copper cathode by electrowinning direct to cathode from a copper solution without involving copper anode production. However, since the input transformation is dictated by feedstock and the feedstock dictates the transformation process, the processing plant is then restricted in terms of its ability to use other feeds and intermediaries that it can process. However, copper anode (the intermediate product), only produced by smelting, is a true intermediate in the production of copper cathode as the step in the transformation process for the production of the final uniform product, the copper cathode, is for all intents and purposes the same in all cases.

[11] DCCEE, 'Nickel Production under the EITE principles' (Explanatory Paper, February 2011).

1.6. PRINCIPLE 6: NO OVERLAP

70. QNPL submits there is no danger of overlap between the activities undertaken by QNPL viz-a-viz BHP Billiton Nickel West and Minara Resources because the plants are not able to make the same intermediates or finished nickel products due to activities, technology and feedstock differences.

71. Two activity definitions will not give rise to any overlap, but they will truly reflect the divergent activities within the nickel industry and ensure that QNPL receives the compensation to which it should be entitled.

2. INTERNATIONAL COMPETITIVENESS

72. QNPL submits that the international context should be fully weighed in the assessment of the activities within the nickel industry in Australia. Consideration of global emissions intensities is relevant to production of nickel and all types of nickel products. The global variability in emissions is highly significant, the emission intensity captured by the three Australian producers is just 30 per cent of the breadth of emissions intensities of the nickel industry around the world as shown in the following graph from Eckelman (2010).

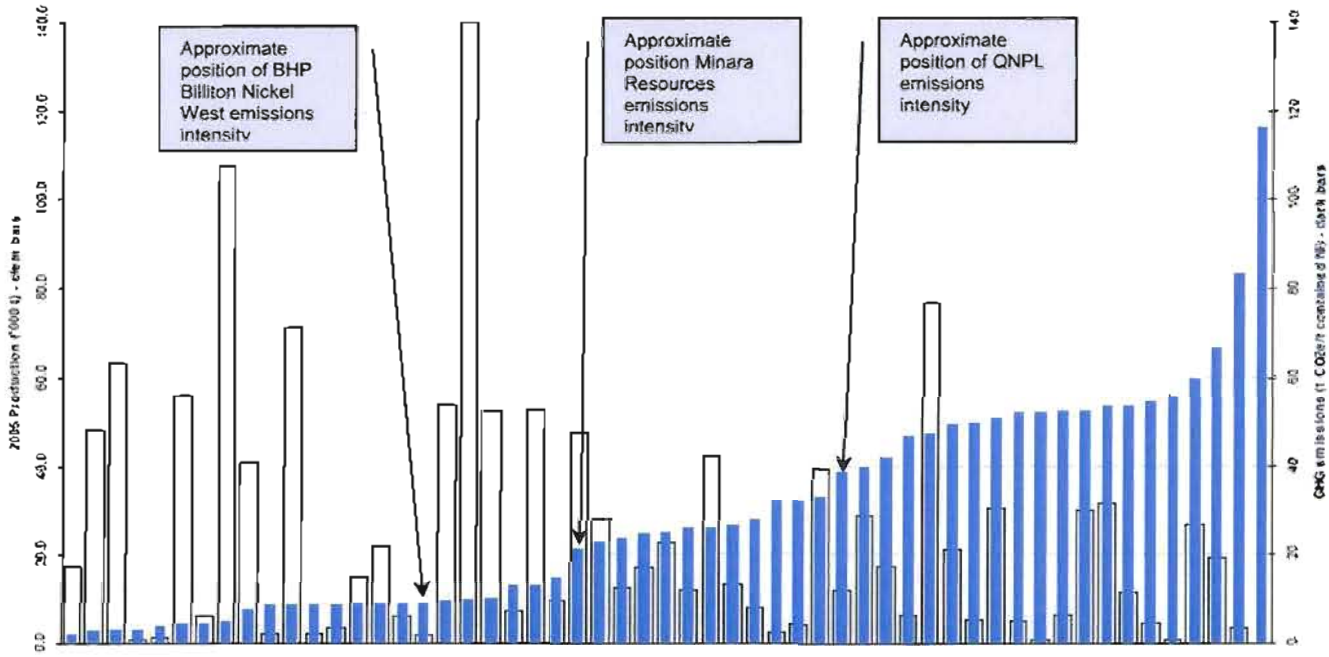
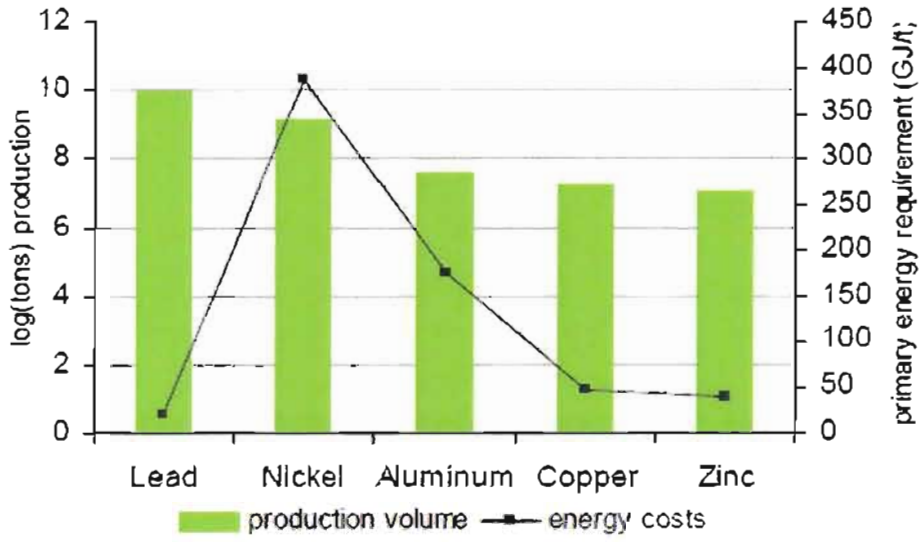


Fig.3. GHG emissions per unit of contained nickel for every major smelter and secondary processing facility worldwide, sorted by GHG emissions (dark bars) and plotted with 2005 production (contained nickel, clear bars).

73. The variability in emissions intensity for nickel as an industry, let alone before consideration of laterite versus sulphide processing routes, is outstanding against the variability in intensity for other types of metal manufacture as shown in the following graph from Eckelman (2010).



74. The essence of the EITE assistance program is compensation directed to assisting Australia's productive capacity in a carbon constrained Australia. Contextualising the activities of Australian entities means that the overarching principle for establishing EITE activities is the alignment of activities with the international market. QNPL submits that the DCCEE have not put enough weight and proper consideration of these factors in the formulation of the draft Activity Definition.

3. CONCLUSION

QNPL firmly disagrees with the draft Activity Definition.

In summary, QNPL submits that the draft Activity Definition is:

1. an industry definition, not an activity definition;
2. inequitable; and
3. inconsistent with precedent and principle.

QNPL disagrees with the assertion by the DCCEE that nickel briquettes and nickel compacts are so substitutable so as to justify the one activity definition for the different transformations of different nickel ore inputs into different outputs.

We request the EAC to reject the draft Activity Definition and in its place to recommend separate activity definitions for:

- the production of LME nickel; and
- the integrated production of customised nickel and cobalt products.

Two activity definitions would be entirely consistent with different inputs, transformations and outputs within the Australian and international nickel industry.

4. REFERENCES

Australian Government, Department of Climate Change and Energy Efficiency, Guidance Paper: 'Establishing the eligibility of emissions-intensive trade-exposed activities' (March 2011).

JP Barkas, 'Greenhouse Gas Emissions from Primary Nickel Production: a "desktop" study' (Presentation to the Nickel Institute, *Members Working Group Meeting*, Vancouver, April 2008).

MJ Eckelman, 'Significant Global Variability in a Facility-Level Greenhouse Gas Assessment of Primary Nickel' (Paper presented at the *2010 IEEE International Symposium on Sustainable Systems and Technology*, Arlington, 17-19 May 2010).

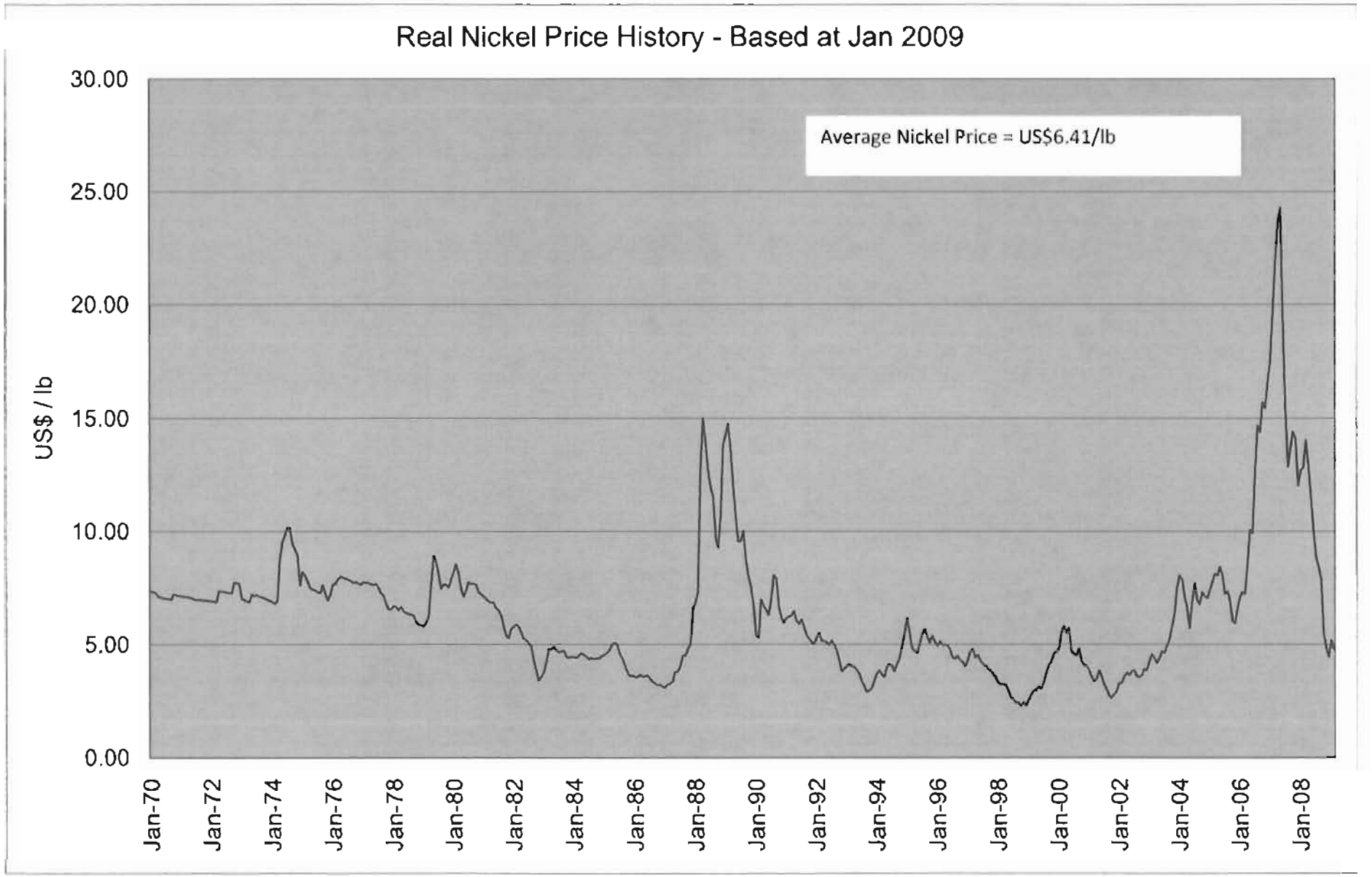
MJ Eckelman, 'Facility-level energy and greenhouse gas life-cycle assessment of the global nickel industry', (2010) 54 *Resources, Conservation and Recycling* 256

GM Mudd, 'Nickel Sulphide Versus Laterite: The Hard Sustainability Challenge Remains', (Paper presented to the 48th Annual Conference of Metallurgists, *Canadian Metallurgical Society*, Canada, August 2009).

5. APPENDICES

Appendix A: QNPL recommended Activity Definitions

Appendix B: QNPL Submission to Senator the Hon Penny Wong, Minister for Climate Change, Energy Efficiency and Water, July 2010


Real Nickel Price History - Based at Jan 2009
Average Nickel Price = US$6.41/lb
US$ / lb
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Jan-70
Jan-72
Jan-74
Jan-76
Jan-78
Jan-80
Jan-82
Jan-84
Jan-86
Jan-88
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Jan-02
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