11 July 2024

Director - Production
Tax Incentives Unit Corporate and International Tax Division
The Treasury, Langton Crescent
PARKES ACT 2600
by email: CriticalMineralsProductionTaxIncentive@treasury.gov.au

Dear Tax Incentives Director

Re: Critical Minerals Production Tax Incentive Consultation June 2024

Quinbrook Infrastructure Partners are pleased to submit these responses to your consultation paper.

We are currently developing a "Green Polysilicon" project at Townsville's Lansdown Eco-Industrial Precinct to be online in 2030. The project would produce up to 150,000 tons of metallurgical grade silicon (99%) from Queensland quartz and purify up to 100,000 tons to solar semiconductor grade quartz at >99.9999% purity for domestic and export markets. The main market is polysilicon, but silicon materials from local quartz are also useful for silicon battery anodes, and for Czochralski crucibles used for silicon ingot manufacturing, the precursor to solar wafers and solar cells. We will power these processes with solar energy, wind energy, and batteries, maximising our use of clean renewable energy.

This project aligns well to the Government's policies to make Australia a renewable energy superpower, to process critical minerals here in Australia, and to extract more value in onshore supply chains.

Table of onshore value creation – Quartz to solar silicon supply chain[i]

Silicon material	Price AU$/kg	Ratio to quartz	Ratio this step to previous step	Energy/material efficiency gain for co-location
Quartz	$ 0.11	1	1	-----
MG-Si	$ 6.15	56x	56x	High
Polysilicon	$ 31.	282x	5x	High
Solar cells	$100.	900x	3.2x	Moderate (to wafer step)

The value of domestic quartz is increased approximately 282x as it is purified to our polysilicon and 900x when it is converted to our customers' domestic solar cells.

We believe the project is an exemplar of your program's objectives.

Sincerely

Brian Restall
Managing Director, Australia
Quinbrook Infrastructure Partners

About Quinbrook Infrastructure Partners

Quinbrook (www.quinbrook.com) is a value add infrastructure fund manager that invests in clean energy in the UK, the US and Australia. Our Australian portfolio companies include:

- a NEM-connected baseload renewable energy generator, Cape Byron Power (www.capebyronpower.com), consisting of two 30 MW biomass fired power stations that generate both renewable electricity and steam for local sugar milling operations;
- an embedded network business that prides itself on helping customers save costs by taking control of their energy needs, Energy Trade (www.energytrade.com.au);
- Lockyer Energy Management Pty Ltd (https://lockyerenergy.com.au/) which is developing a hybrid peaking and utility battery project in Queensland, and
- Supernode (https://supernode.com.au/) which is developing industrial scale data centre sites across Australia, including the flagship Brendale site (https://www.quinbrook.com/news-insights/quinbrook-launches-2-5-billion-supernode-data-storage-project-in-brisbane-to-be-powered-by-renewables-and-battery-storage/).

Quinbrook has been selected by Grok Ventures to develop the domestic leg of the SunCable project, 6 GW of baseload renewable power to Darwin for sustainable industry and export to Singapore.

Quinbrook is expanding its investment focus from renewable infrastructure to the critical minerals and processing needed to supply renewable infrastructure equipment, leveraging our buying power and OEM strategic partnerships. Given our increasing interest in early-stage critical mineral mining and processing opportunities, we have a keen interest in the proposed policy.

Our responses to the CMPTI paper

Who is eligible

1. Please provide any feedback on the proposed eligibility criteria.

The Commonwealth should ensure that foreign entities paying withholding tax are included in the definition of eligible entities.

2. What key factors would need to be accounted for in a definition of Final Investment Decision (FID) for the purposes of the CMPTI?

A board resolution or investment committee resolution within the time deadline should qualify.

3. How long do you expect it will take for processing and refining facilities to reach first production following FID?

This is highly variable, but we have planned 12 to 36 months.

Eligible processing expenditure

4. Please provide feedback on the proposed eligible expenditure.

We support the categories of reagents and consumables (including in our case: wood chips, charcoal, and electrodes to the smelter furnace; and make-up HCl, hydrogen, catalysts, adsorbents, processing aids, and alkali to the polysilicon plant); labour; utilities (including electricity, natural gas, industrial water); maintenance; logistics and transport.

5. Please provide feedback on where you draw the line between mining and primary processing and mid-stage processing.
We suggest that this aligns with royalty regimes in various jurisdictions for consistency. We support that this is targeted at value-adding downstream processing such as smelting of quartz to metallurgical silicon and various chemical processes to react MG-Si to chlorosilanes, to distil silanes, and to perform chemical vapour deposition of silanes to highly purified polycrystalline silicon.

6. Are there any competitive neutrality considerations to ensure the CMPTI treats different projects fairly and does not distort commercial decision-making? For example, how should capital costs for power generation be treated for facilities that produce their own power?
We believe it is simpler for operating expenses to be included in the CMPTI.

7. What, if any, transport costs should qualify? How could a sensible boundary between eligible and ineligible transport costs be drawn?
We do not have an opinion to share.

8. What reagent costs should be eligible?
CMPTI should allow wood chips, charcoal, and electrodes at the smelter furnace; and make-up HCl, hydrogen, and alkali to the polysilicon plant, plus certain catalysts, adsorbents, processing aids.

9. What costs associated with the treatment, enrichment or disposal of waste should be included? Why?
Australian environmental performance requirements and social expectations are higher than certain overseas manufacturing competitor jurisdictions. CMPTI should acknowledge appropriately that Australian entities will ‘do the right thing’ and create circular economy solutions that reduce, re-use and recycle by-products and wastes. Supporting these costs in the early years increases the capacity of domestic industry to compete in the future.

10. What structures are likely to be adopted in critical minerals processing that could give rise to related party transactions? How should related party dealings be treated under the CMPTI?
Presently, we foresee that the silicon smelter and polysilicon plants will be different legal entities with some potential overlap among the equity owners. The smelter will sell MG-Si to the polysilicon plant. To achieve energy efficiency, they will sell / buy waste heat steam transferred from the smelter to the polysilicon distillation train. It is also possible that downstream co-located ingot/wafering customers will recycle offcuts and kerf silicon powder to upstream processes for material efficiencies and waste reduction.

11. What intellectual property (IP) arrangements are adopted by critical minerals processers? What treatment should apply to the payment of royalties? What measures could be put in place to manage integrity risks.
Polysilicon production technology is not practiced in Australia, and we are likely to pay royalties to a foreign partner to licence technology and bring it to Australia. Otherwise, a domestic industry is impossible. This is not technology an Australian entity can learn alone.

Eligible outputs

12. Which critical minerals are currently processed in Australia? To what grade?

SIMCOA, Kemerton, WA produces MG-Si at around 99% purity. Information is publicly available. We do not know of any polysilicon production in Australia.

13. Of Australia's 31 critical minerals, what are the current common market requirements for processed outputs?

For silicon, this information is publicly available.

14. What is the form of the raw critical mineral when it arrives at your facility and what is its state when it leaves your facility?

Quarry quartz will be received in lumps. MG-Si and polysilicon are shipped as 25 to 100 mm lumps.

15. Can you provide details on the full workflow process to convert the raw critical mineral to the end-product(s) in your facility? Does the workflow process involve beneficiation?

Example flow diagrams for MG-Si and polysilicon are provided at www.brinson.com.au/report.

16. What are the associated costs (e.g., reagents and consumables, labour, utilities, maintenance, logistics/transport, waste, etc.) for each processing stage undertaken in your facility?

We have detailed financial models, but these are based on generic data available from public sources and consultants. We are still in discussions and negotiations with prospective technology and operating partners, and we do not have final cost data available for the CMPTI program.

17. Does the end product undergo any further processing after it leaves your facility? Can you provide more details regarding the next steps and/or process?

MG-Si is converted to polysilicon. Polysilicon is melted and doped with a semiconductor such as boron, then drawn as a monocrystalline ingot before being sliced into wafers.

18. To what extent are different minerals processed together e.g., from the same raw material? What considerations does this give rise to for the application of the CMPTI?

This is not applicable to our processes.

19. What is a sensible approach to apportionment of mixed-use costs?

We are unsure how this is applicable to our processes.

Administrative arrangements

20. Please provide feedback on the proposed administration arrangements.

21. What testing certifications of processed minerals are common in industry

22. Do businesses regularly rely on commodity contracts to evidence the purity of the commodities being exchanged?

23. Do current facilities fail processed mineral purity tests? If so, how often?

Common answer to Questions 20-23: Solar polysilicon is subject to very tight quality control procedures in precision analytical chemistry laboratories. Well designed and well operated processes do not regularly fail QA/QC purity tests.

Community benefit principles

24. What obligations should be imposed on potential recipients of the CMPTI to ensure the community benefit principles are met?

25. What obligations are potential recipients of the CMPTI currently subject to that might support the community benefit objectives (noting these will be finalised under the Future Made in Australia Act)?

Common answer to Questions 24-25: We operate funds for green energy and ethical investors including stringent requirements such as the European Union Green Bond rules for climate-neutral, sustainable, energy- and resource-efficient, circular and fair economy investments. We look forward to learning more about the community benefits and supporting the objectives.

26. Are there any additional objectives that you consider important? What obligations might support these?

We recommend that CMPTI deductions only apply to electric power that is renewable or zero carbon.

27. Recipients of the CMPTI may be subject to additional transparency and disclosure requirements in order to be eligible. What kind of requirements are appropriate? What are the key practical considerations to take into account when setting the requirements?

We recommend that CMPTI deductions only apply to electric power that is renewable or zero carbon.

28. How should entities proposing to claim the CMPTI be required to demonstrate compliance with tax obligations?

We do not have a demonstration proposal.

29. What information do you think should be reported publicly on the recipients of the CMPTI and the amount of credit received?

Requirements should align with existing tax reporting.

30. Who should the reporting requirements be imposed on? For example, on the recipient entity, or central reporting through a regulator?

Reporting should be centralized and aggregated.

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[i] Onshore value creation from quartz to solar silicon in the supply chain is calculated as follows. Quartz AU$0.11/kg, a global benchmark price reported to us by a third party, not our contract price, AU$1.00/US$0.65 currency exchange rate; MG-Si AU$6.15/kg as US$4000/ton contract price for non-Chinese metal in US market; Polysilicon AU$31/kg as US$20/kg, price for non-Chinese poly in US market, noting NREL “Solar Industry Update, May 14, 2024”, April 2023 prices at US$20/kg, and prices as low as US$6.76 in current oversupply price war situation; Solar cells AU$83/kg from data in ITRPV, 15th ed., 2024, Fig 40, p. 34, calculated as 25% efficiency HJT or other cell, US$0.17/W NREL 2024, 140 micron cell thickness from ITRPV.