PUBLIC DISCLOSURE STATEMENT

VULCAN ENERGY RESOURCES LIMITED

ORGANISATION CERTIFICATION

CY2023

Australian Government

Climate Active
Public Disclosure Statement

VULCAN ENERGY
ZERO CARBON LITHIUM™

An Australian Government Initiative

Climate Active

NAME OF CERTIFIED ENTITY	Vulcan Energy Resources Limited
REPORTING PERIOD	1 January 2023 – 31 December 2023 Arrears report
DECLARATION	*To the best of my knowledge, the information provided in this public disclosure statement is true and correct and meets the requirements of the Climate Active Carbon Neutral Standard.* 
	Cris Moreno CEO and Managing Director 24 May 2024

Australian Government
Department of Climate Change, Energy, the Environment and Water

Version August 2023.

1.CERTIFICATION SUMMARY

TOTAL EMISSIONS OFFSET	608 tCO_2-e
CARBON OFFSETS USED	93.6% VCUs, 6.4% CERs
RENEWABLE ELECTRICITY	N/A
CARBON ACCOUNT	Prepared by: Sustainable Business Consultants
TECHNICAL ASSESSMENT	25/4/23 Sustainable Business Consultants Next technical assessment due: CY2025 report

Contents

2. CERTIFICATION INFORMATION

Description of organisation certification

This organisation certification is for the Australian business operations of Vulcan Energy Resources Limited ("Vulcan Energy" or "Vulcan"), ABN 38 624 223 132 and follows the operational control approach.

Subsidiary companies, Vulcan Energy Resources Europe Pty Ltd and Vulcan Energy Ressourcen GmbH (both based in Germany) own licenses for the ZERO CARBON LITHIUM™ Project and have office personnel and a lithium optimisation plants based in Germany. The German operations are outside of the boundary of this Climate Active certification and are currently being certified through Climate Impact Partners. This decision will be revisited in the future when the Climate Active Trademark becomes recognized and more popular in markets outside Australia.

The operational boundary of this Climate Active certification includes Scope 1, 2 and 3 emissions of the Australian operations, as well as international travel and the purchase of some services that have been utilised outside of Australia but paid for by Vulcan Energy.

This Public Disclosure Statement includes information for the CY2023 reporting period.

Organisation description

Vulcan Energy Resources Limited ABN 38 624 223 132 is the parent company of a group of companies involved in geothermal exploration and the creation of the ZERO CARBON LITHIUM™ Project. The Australian operations (located in Perth) consist of office-based activities and travel for senior management and the administration team, as well as goods and services purchased in the course of the activities described below.

Vulcan is focused on delivering the world's first integrated renewable energy and ZERO CARBON LITHIUM™ Project. By adapting existing technologies to efficiently extract lithium from geothermal brine, Vulcan aims to deliver a local source of sustainable lithium for Europe, built around a carbon neutral strategy with exclusion of fossil fuels. Already an operational renewable energy producer in Germany, Vulcan will also provide renewable electricity and heat to local communities. Vulcan's combined geothermal energy and lithium resource is the largest in Europe[1], with license areas focused on the Upper Rhine Valley, Germany.

Purpose. We will empower a carbon neutral future

Mission. Becoming Europe`s leading ZERO CARBON LITHIUM™ business and enabling energy security through geothermal energy.

Strategically placed in the heart of the European electric vehicle market to decarbonise the supply chain, Vulcan is rapidly advancing the ZERO CARBON LITHIUM™ Project to target timely market entry, with the ability to expand to meet the unprecedented demand that is building in the European markets. Guided by our Values of Climate Champion, Determined and Inspiring, and united by a passion for the environment

[1] *According to public, JORC-compliant data. See Upgrade of Zero Carbon Lithium™ Project Resources, 29 September 2023.*

and leveraging scientific solutions, Vulcan has a unique, world-leading scientific and commercial team in the fields of lithium chemicals and geothermal renewable energy. Vulcan is committed to partnering with organisations that share its decarbonisation ambitions and has binding lithium offtake agreements with some of the largest cathode, battery and automakers in the world.

As a motivated disruptor, Vulcan aims to leverage its multidisciplinary expert team, leading geothermal technology and position in the European EV supply chain to be a global leader in producing carbon neutral lithium. Vulcan aims to be the largest, most preferred, strategic supplier of lithium chemicals and renewable power and heating from Europe, for Europe; to empower a carbon neutral future.

As stated above, this certification excludes the operations in Germany.

3. EMISSIONS BOUNDARY

Inside the emissions boundary

All emission sources listed in the emissions boundary are part of the carbon neutral claim.

Quantified emissions have been assessed as relevant and are quantified in the carbon inventory. This may include emissions that are not identified as arising due to the operations of the certified entity, however are **optionally included**.

Non-quantified emissions have been assessed as relevant and are captured within the emissions boundary but are not measured (quantified) in the carbon inventory. All material emissions are accounted for through an uplift factor. Further detail is available at Appendix C.

Outside the emissions boundary

Excluded emissions are those that have been assessed as not relevant to an organisation's operations and are outside of its emissions boundary or are outside of the scope of the certification. These emissions are not part of the carbon neutral claim. Further detail is available at Appendix D.

Inside emissions boundary

Quantified

- Accommodation
- Carbon neutral products and services
- Cleaning and chemicals
- Electricity
- Food
- Information and Communication Technologies (ICT) services and equipment
- Office equipment and supplies
- Postage, courier and freight
- Products
- Professional services
- Transport (air)
- Transport (land and sea)
- Waste
- Working from home

Non-quantified

- Refrigerants
- Stationery energy
- Water

Outside emission boundary

Excluded

4. EMISSIONS REDUCTIONS

Emissions reduction strategy

Vulcan commits to reducing the total emissions of its business operations by 5 per cent by CY2027, from a CY2020 baseline. This target will be reviewed and revised next year taking into consideration the work we are currently doing to establish our forecast inventory for the life of the project. Any revision of the target will be aimed at ensuring it is realistic and achievable in terms of future developments in Vulcan's operations.

The initiatives set out below are based on the emissions causing activities in our carbon inventory. In setting these initiatives we have considered our ability to control or influence emissions reduction, to switch to alternative sources and to purchase lower carbon supplies and services.

Initiative	CY23	CY24	CY25	CY26	CY27	Measure/target
Scope 2: Energy efficiency and savings						
Turn off lights when not needed through automation of task allocation	*x*	*x*	*x*	*x*	*x*	Continuous
Shut down computers and monitors at end of day	*x*	*x*	*x*	*x*	*x*	Energy policy set-up on all computers - continuous
Lease low energy consumption printer	*x*	*x*	*x*	*x*	*x*	Epson, heat-free Workforce Pro printer and scanner, saves up to 80% electricity (ongoing)
Scope 3: Waste						
Reduce waste to landfill by implementing greater separation between different wastes, have bins specific to hard plastics, paper, organics and general waste		*x*	*x*	*x*	*x*	Implement food waste/ composting bin
Find companies to take waste for re-use	*x*	*x*	*x*	*x*	*x*	Donut Waste subscription
Reduce takeaway cups / single use plastics for lunches	*x*	*x*	*x*	*x*	*x*	Reduction of waste going to landfill by 75%
Scope 3: Paper						
Use electronic signatures where possible and use technology to proof documents	*x*	*x*	*x*			Transition to digital office workflows completed by CY25
Buy carbon neutral paper certified in Australia (A3 and A4)		*x*	*x*	*x*	*x*	Complete transition to carbon neutral copy paper when available
Policy						

Include ESG policy for new professional service providers	*x*	*x*	*x*	*x*	*x*	Sustainable supplier policy Pre-qualification ESG questionnaire Benchmarking and assessment process for procurement
Scope 3: Staff commuting and working from home						
Utilise public transport where possible rather than private vehicle	*x*	*x*	*x*			Introduce company initiatives to incentivise staff

Emissions reduction actions

During 2023, Vulcan implemented the following initiatives.

- Turned off lights when not needed through automation of task allocation
- Shut down computers and monitors at end of day
- Leased more energy efficient printer
- Reduced takeaway cups / single use plastics for lunches
- Used electronic signatures where possible and use technology to proof documents
- Included ESG policy for new professional service providers
- Utilised public transport where possible rather than private vehicle

5. EMISSIONS SUMMARY

Emissions over time

Emissions since base year			
		Total tCO_2-e (without uplift)	**Total tCO_2-e** (with uplift)
Base year/Year 1:	2020	269.12	N/A
Year 2:	2021	568.58	N/A
Year 3: see note	2022	761.60	N/A
Year 4:	2023	641.59	N/A

Note: the Year 3 total has been reduced by 33.77 tonnes to reflect an error in that year's total emissions that was identified this year. The number of offsets purchased this year has been reduced by the same amount making the offsets purchase for 2023, 608 tonnes. This is shown in the Emissions summary.

Significant changes in emissions

Significant changes in emissions			
Emission source	**Previous year emissions** (t CO_2-e)	**Current year emissions** (t CO_2-e)	**Reason for change**
Accounting services	119.92	136.52	Due to the business growth and increased transaction volume
Legal services	326.22	272.06	Decrease due to lower volume of legal services
Air travel, long haul flights	13.82	84.76	Business growth – more executives employed through the Head office who must travel regularly

Use of Climate Active carbon neutral products, services, buildings or precincts

Certified brand name	Product/Service/Building/Precinct used
N/A	

Emissions summary

The electricity summary is available in the Appendix B. Electricity emissions were calculated using a location-based approach.

Emission category	Sum of Scope 1 (t CO2-e)	Sum of Scope 2 (t CO2-e)	Sum of Scope 3 (t CO2-e)	Total emissions (t CO_2-e)
Accommodation and facilities	0.00	0.00	1.32	1.32
Cleaning and chemicals	0.00	0.00	0.15	0.15
Electricity	0.00	0.68	0.05	0.73
Electric vehicle charging	0.00	0.00	0.26	0.26
Food	0.00	0.00	1.19	1.19
ICT services and equipment	0.00	0.00	3.16	3.16
Office equipment & supplies	0.00	0.00	3.31	3.31
Postage, courier and freight	0.00	0.00	0.04	0.04
Products	0.00	0.00	0.21	0.21
Professional Services	0.00	0.00	513.39	513.39
Transport (Air)	0.00	0.00	111.05	111.05
Transport (Land and Sea)	0.00	0.00	5.05	5.05
Waste	0.00	0.00	1.50	1.50
Working from home	0.00	0.00	0.23	0.23
Total emissions (tCO_2-e) in 2023				**641.59**
Correction for error in 2022 inventory				-33.77
Total to be offset				**607.82**

Uplift factors

An uplift factor is an upwards adjustment to the total carbon inventory to account for relevant emissions that cannot be reasonably quantified or estimated. This conservative accounting approach helps ensure the integrity of the carbon neutral claim.

Reason for uplift factor	tCO_2-e
N/A	
Total of all uplift factors (tCO_2-e)	-
Total emissions footprint to offset (tCO_2-e) *(total emissions from summary table + total of all uplift factors)*	**607.82**

6. CARBON OFFSETS

Eligible offsets retirement summary

Offsets retired for Climate Active certification

Type of offset units	Eligible quantity (used for this reporting period)	Percentage of total
Certified Emissions Reduction units (CERs)	39	6.4%
Verified Carbon Units (VCUs)	569	93.6%

Project description	Type of offset units	Registry	Date retired	Serial number (and hyperlink to registry transaction record)	Vintage	Stapled quantity	Eligible quantity retired (tCO_2-e)	Eligible quantity used for previous reporting periods	Eligible quantity banked for future reporting periods	Eligible quantity used for this reporting period	Percentage of total (%)
Huaneng Liaoning Fuxin Phase ii Wind Power Project	CER	ANREU	04 May 2023	967,862,982 - 967,863,020 (see Attachment A for screenshot)	2013	-	39	0	0	39	6.42%
Gola REDD project	VCU	Verra	22 May 2024	16036-735903685-735903884-VCS-VCU-261-VER-SL-14-1201-01012017-31122017-1	2017	-	200	0	0	200	32.90%
Gansu Zhangye Heihe Longhui Small Scale Hydropower, China	VCU	Verra	22 May 2024	11133-283298752-283299068-VCS-VCU-324-VER-CN-1-666-01012013-31122013-0	2013	-	1503	0	1451	52	8.55%
Gansu Zhangye Heihe Longhui Small Scale Hydropower, China	VCU	Verra	22 May 2024	11075-277651041-277652543-VCS-VCU-324-VER-CN-1-666-01012013-31122013-0	2013	-	317	0	0	317	52.13%
									Total eligible offsets retired and used for this report	608	
									Total eligible offsets retired this report and banked for use in future reports	1451	

Note: VER purchases offsets in bulk for both its Australian Climate Active organisation certification and for the remainder of its operations overseas. Therefore the respective registries on which the offsets purchased in 2024 have been retired do not specifically state that these are for the Australian operations. Instead, CER is provided with certificates from the provider that supplies its offsets, detailing the purpose of the purchases. The certificates are shown in Attachment A. When the inventory for the international operations has been finalised, then an appropriate number of offsets will be allocated. This will mean that VER's Carbon offsets summary next year will not tally with that set out above, i.e. the number of offsets banked will be nil or less than 1451, the difference having been used for the international operations inventory.

7. RENEWABLE ENERGY CERTIFICATE (REC) SUMMARY

Renewable Energy Certificate (REC) summary

N/A.

APPENDIX A: ADDITIONAL INFORMATION

The certificates shown below provide evidence that the offsets detailed in this document were retired on behalf of Vulcan Energy.

VERRA

Verified Carbon Standard

Certificate of Verified Carbon Unit (VCU) Retirement

Verra, in its capacity as administrator of the Verra Registry, does hereby certify that on 22 May 2024, 317 Verified Carbon Units (VCUs) were retired on behalf of:

Vulcan Energy Resources Ltd

Project Name
Gansu Zhangye Heihe Longhui Small Scale Hydropower Project

VCU Serial Number
11133-283298752-283299068-VCS-VCU-324-VER-CN-1-666-01012013-31122013-0

Additional Certifications

Powered by APX

VERRA

Verified Carbon Standard

Certificate of Verified Carbon Unit (VCU) Retirement

Verra, in its capacity as administrator of the Verra Registry, does hereby certify that on 22 May 2024, 1,503 Verified Carbon Units (VCUs) were retired on behalf of:

Vulcan Energy Resources Ltd

Project Name
Gansu Zhangye Heihe Longhui Small Scale Hydropower Project

VCU Serial Number
11075-277651041-277652543-VCS-VCU-324-VER-CN-1-666-01012013-31122013-0

Additional Certifications

Powered by APX

VERRA

Verified Carbon Standard

Certificate of Verified Carbon Unit (VCU) Retirement

Verra, in its capacity as administrator of the Verra Registry, does hereby certify that on 22 May 2024, 200 Verified Carbon Units (VCUs) were retired on behalf of:

Vulcan Energy Resources Ltd

Project Name
Gola REDD project

VCU Serial Number
16036-735903685-735903884-VCS-VCU-261-VER-SL-14-1201-01012017-31122017-1

Additional Certifications
CCB-Biodiversity Gold; CCB-Climate Gold

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Australian
National Registry
of Emissions Units

Logged in as: Justin Reamon / Industry User

Transaction Details

Transaction details appear below.

Transaction ID	AU27209
Current Status	Completed (4)
Status Date	05/05/2023 02:06:57 (AEST) 04/05/2023 16:06:57 (GMT)
Transaction Type	Cancellation (4)
Transaction Initiator	Reamon, Justin Matthew
Transaction Approver	Bell, Stella Elizabeth
Comment	Retired on behalf of Vulcan Energy Resources LTD. to compensate for carbon emissions of Australian Operations

Transferring Account

Account Number	AU-2931
Account Name	Natural Capital Partners Americas, LLC
Account Holder	Natural Capital Partners Americas, LLC

Acquiring Account

Account Number	AU-2764
Account Name	Voluntary Cancellation – CP2
Account Holder	Commonwealth of Australia

Transaction Blocks

Party	Type	Transaction Type	Original CP	Current CP	ERF Project ID	NGER Facility ID	NGER Facility Name	Safeguard	Kyoto Project #	Vintage	Expiry Date	Serial Range	Quantity
CN	CER	Kyoto Voluntary Cancellation	2	2					CN-2918			967,862,982 - 967,863,020	39

APPENDIX B: ELECTRICITY SUMMARY

There are two international best-practice methods for calculating electricity emissions – the location-based method and the market-based method. Reporting electricity emissions under both methods is called dual reporting.

Dual reporting of electricity emissions is useful, as it provides different perspectives of the emissions associated with a business's electricity usage.

Location-based method:

The location-based method provides a picture of a business's electricity emissions in the context of its location, and the emissions intensity of the electricity grid it relies on. It reflects the average emissions intensity of the electricity grid in the location (State) in which energy consumption occurs. The location-based method does not allow for any claims of renewable electricity from grid-imported electricity usage.

Market-based method:

The market-based method provides a picture of a business's electricity emissions in the context of its renewable energy investments. It reflects the emissions intensity of different electricity products, markets and investments. It uses a residual mix factor (RMF) to allow for unique claims on the zero emissions attribute of renewables without double-counting.

For this certification, electricity emissions have been set by using the **location-based approach**.

Market-based approach summary

Market-based approach	Activity Data (kWh)	Emissions (kg CO_2-e)	Renewable percentage of total
Behind the meter consumption of electricity generated	0	0	0%
Total non-grid electricity	**0**	**0**	**0%**
LGC Purchased and retired (kWh) (including PPAs)	0	0	0%
GreenPower	0	0	0%
Climate Active precinct/building (voluntary renewables)	0	0	0%
Precinct/Building (LRET)	0	0	0%
Precinct/Building jurisdictional renewables (LGCS surrendered)	0	0	0%
Electricity products (voluntary renewables)	0	0	0%
Electricity products (LRET)	0	0	0%
Electricity products jurisdictional renewables (LGCs surrendered)	0	0	0%
Jurisdictional renewables (LGCs surrendered)	0	0	0%
Jurisdictional renewables (LRET) (applied to ACT grid electricity)	0	0	0%
Large Scale Renewable Energy Target (applied to grid electricity only)	244	0	19%
Residual Electricity	1,041	947	0%
Total renewable electricity (grid + non grid)	**244**	**0**	**19%**
Total grid electricity	**1,285**	**947**	**19%**
Total electricity (grid + non grid)	**1,285**	**947**	**19%**
Percentage of residual electricity consumption under operational control	100%		
Residual electricity consumption under operational control	**1,041**	**947**	
Scope 2	927	843	
Scope 3 (includes T&D emissions from consumption under operational control)	114	104	
Residual electricity consumption not under operational control	**0**	**0**	
Scope 3	0	0	

Total renewables (grid and non-grid)	**18.96%**
Mandatory	**18.96%**
Voluntary	**0.00%**
Behind the meter	**0.00%**
Residual scope 2 emissions (t CO2-e)	**0.84**
Residual scope 3 emissions (t CO2-e)	**0.10**
Scope 2 emissions liability (adjusted for already offset carbon neutral electricity) (t CO2-e)	**0.84**
Scope 3 emissions liability (adjusted for already offset carbon neutral electricity) (t CO2-e)	**0.10**
Total emissions liability (t CO2-e)	**0.95**

Figures may not sum due to rounding. Renewable percentage can be above 100%

Location-based approach summary

Location-based approach	Activity Data (kWh) total	Under operational control			Not under operational control	
Percentage of grid electricity consumption under operational control	**100%**	**(kWh)**	**Scope 2 Emissions ($kgCO_2$-e)**	**Scope 3 Emissions ($kgCO_2$-e)**	**(kWh)**	**Scope 3 Emissions ($kgCO_2$-e)**
WA	1,285	1,285	681	51	0	0
Grid electricity (scope 2 and 3)	**1,285**	**1,285**	**681**	**51**	**0**	**0**
WA	0	0	0	0		
Non-grid electricity (behind the meter)	**0**	**0**	**0**	**0**		
Total electricity (grid + non grid)	**1,285**					

Residual scope 2 emissions (t CO_2-e)	**0.68**
Residual scope 3 emissions (t CO_2-e)	**0.05**
Scope 2 emissions liability (adjusted for already offset carbon neutral electricity) (t CO_2-e)	**0.68**
Scope 3 emissions liability (adjusted for already offset carbon neutral electricity) (t CO_2-e)	**0.05**
Total emissions liability	**0.73**

Operations in Climate Active buildings and precincts

Operations in Climate Active buildings and precincts	Electricity consumed in Climate Active certified building/precinct (kWh)	Emissions (kg CO_2-e)
N/A	**0**	**0**

Climate Active carbon neutral electricity is not renewable electricity. These electricity emissions have been offset by another Climate Active member through their building or precinct certification. This electricity consumption is also included in the market based and location-based summary tables. Any electricity that has been sourced as renewable electricity by the building/precinct under the market-based method is outlined as such in the market-based summary table.

Climate Active carbon neutral electricity products

Climate Active carbon neutral electricity product used	Electricity claimed from Climate Active electricity products (kWh)	Emissions (kg CO_2-e)
N/A	**0**	**0**

Climate Active carbon neutral electricity is not renewable electricity. These electricity emissions have been offset by another Climate Active member through their electricity product certification. This electricity consumption is also included in the market based and location-based summary tables. Any electricity that has been sourced as renewable electricity by the electricity product under the market-based method is outlined as such in the market-based summary table.

APPENDIX C: INSIDE EMISSIONS BOUNDARY

Non-quantified emission sources

The following emissions sources have been assessed as relevant, are captured within the emissions boundary, but are not measured (quantified) in the carbon inventory. They have been non-quantified due to one of the following reasons:

1. **Immaterial** <1% for individual items and no more than 5% collectively
2. **Cost effective** Quantification is not cost effective relative to the size of the emission but uplift applied.
3. **Data unavailable** Data is unavailable but uplift applied. A data management plan must be put in place to provide data within 5 years.
4. **Maintenance** Initial emissions non-quantified but repairs and replacements quantified.

Relevant non-quantified emission sources	Justification reason
Refrigerants	Immaterial
Stationery energy	Immaterial
Water	Immaterial

Data management plan for non-quantified sources

There are no non-quantified sources in the emission boundary that require a data management plan.

APPENDIX D: OUTSIDE EMISSIONS BOUNDARY

Excluded emission sources

The below emission sources have been assessed as not relevant to this organisation's operations and are outside of its emissions boundary. These emissions are not part of the carbon neutral claim. Emission sources considered for relevance must be included within the certification boundary if they meet two of the five relevance criteria. Those which only meet one condition of the relevance test can be excluded from the certification boundary.

Emissions tested for relevance are detailed below against each of the following criteria:

1. **Size** The emissions from a particular source are likely to be large relative to the organisation's electricity, stationary energy and fuel emissions.

2. **Influence** The responsible entity has the potential to influence the reduction of emissions from a particular source.

3. **Risk** The emissions from a particular source contribute to the organisation's greenhouse gas risk exposure.

4. **Stakeholders** Key stakeholders deem the emissions from a particular source are relevant.

5. **Outsourcing** The emissions are from outsourced activities previously undertaken within the organisation's boundary, or from outsourced activities typically undertaken within the boundary for comparable organisations.

Excluded emissions sources summary

Emission sources tested for relevance	Size	Influence	Risk	Stakeholders	Outsourcing	Justification
N/A						**Size:** **Influence:** **Risk:** **Stakeholders:** **Outsourcing:**

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