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Managing Director
 Diamond Energy Pty Ltd
 101 Greville St, Prahran, 3181
 Date 2nd May 2024

Subject: Letter of Opinion Auditing Diamond Energy’s Renewable Energy and Emission Footprint Performance, April 2024

To Whom It May Concern:

Francis Grey, consulting economist, was engaged by Diamond Energy (DE) to provide an independent Letter of Opinion (LOP) summarising an audit of statements made by DE (and the corresponding supporting analysis) for the period from the company’s inception (January, 2007 to December, 2023 inclusive) and the last five years (January 2019 to December 2023 inclusive), namely that:

1. Australian Made Renewable Energy Percentage	<i>“Diamond Energy delivers more electricity sourced from Australian renewable energy generators to the grid than our customers consume.”.</i>
2. Emissions intensity of sales	<i>“Historically, the net greenhouse gas emissions abatement from Diamond Energy’s renewable energy generators exceeds the GHG emissions arising from the electricity consumed by our customers.”</i>
3. Emission intensity of assets	<i>“Diamond Energy owned, and controlled, generation assets deliver a lower emission intensity than the grid average. Since inception our assets have delivered a net abatement of 2.12 tonnes of carbon dioxide equivalent per MWh of generated electricity. This is even greater if you include avoided emissions that would otherwise have been released from organic waste.”</i>
4. Renewable Energy Performance	<i>“Diamond Energy’s owned and controlled generation assets deliver more renewable energy than all their market customers consume.”</i>

The company publicly committed, in 2020, to going beyond carbon neutral through the **“Science Based Targets initiative”** (SBTi), a collaboration of the UN Global Compact and implementation partners. The company publicly released that it had been ‘climate positive’ since inception in 2007, and each year it has been abating all generation emissions and creating additional ‘negative emissions’. A ‘negative emission’ is when an action creates, firstly, a zero emission and, secondly, directly results in a further direct emission reduction beyond the abatement¹. This ‘beyond zero’ result ensures an outcome that goes further than a neutral climate impact and creates a ‘positive’ climate impact (ie ‘climate positive’) implying a temperature outcome lower than the 1.5 degrees target set in the Paris agreement. The company reviews its annual performance against its SBTi targets. Through SBTi, DE has selected the lowest, formally available, SBTi target of “1.5 degrees”²³, even though it is presently tracking a result lower than 1.5 degrees, whilst seeking to measure and

¹. Offsets do not count as abatement of emissions, hence they are not included or used to achieve this outcome.

². <https://sciencebasedtargets.org/faqs#what-are-science-based-targets>

³. <https://sciencebasedtargets.org/resources/?p=resources>

reduce its Scope 3 emissions using the “Greenhouse Gas Protocol Value Chain (Scope 3) Accounting and Reporting Standard”⁴.

5. SBTi Net-Zero Target Performance against commitment	<i>“Diamond Energy is meeting and exceeding it’s SBTi commitment to reduce it’s Scope 1 and Scope 2 GHG emissions”.</i>
6. Greenhouse Gas (GHG) - Supplier Specific Emission Factor (SEF) for DE Scope 1, 2 & 3 emissions	<i>For entities that report Scope 2 emissions, for electricity purchased from Diamond Energy, and consumed from the NEM in 2023, Diamond Energy has calculated it’s “supplier-specific”, weighted average emission rate (SEF) factor to lower than -0.0 tonnes of CO₂e/MWh (unadjusted for customers specific site loss factors).</i>

DE has provided an estimate of its supplier Specific Emissions Factor (SEF). Estimates of the Scope 1, 2 and 3 emissions using US National Renewable Laboratory (NREL) emission factors for wind and PV have facilitated this estimation. The DE SEF estimation is continuing to be refined though it has a high level of accuracy as it covers all the major emission sources. DE calculated its SEF for its entire portfolio of rooftop/utility PV, wind, and biogas/landfill gas. It should be noted that PV/Wind has a SEF of positive +0.03 tCO₂E/MWh and the biogas/landfill gas have a SEF of negative -0.67 tCO₂E/MWh. DE’s SEF for 2023 was a weighted average negative -0.92 tCO₂E/MWh compared with the 2023 average National Electricity Market (NEM) SEF of positive +0.61 tCO₂E/MWh.

This LOP, follows previous LOP’s provided in 2015, 2017, 2019, 2021, 2022 and 2023, and has utilised the same methodology.

This audit of the emissions assessment (EA) methods used by DE has sought to test and confirm the accuracy of the above statements. This audit of the information provided by Diamond Energy included examination of the underlying data, its sources and the corresponding calculations and assumptions. This letter should be read in conjunction with the attachment of supporting information.

The aim of this audit was to assess the veracity of the statements and to ensure they are both accurate and fair. The supporting information attachment provides further detail in this regard.

Based on the audit conducted, it is our conclusion that DE’s statements are accurate observations, calculations and assumptions about the company’s renewable energy and emission footprint performance with respect to the company’s retail customers over the period since inception (2007-2023) and over the five-year period from 2019 to 2023.

Yours sincerely



Francis Grey,
Consulting Economist

⁴. <https://ghgprotocol.org/standards/Scope-3-standard>

ATTACHMENT: SUPPORTING INFORMATION

Introduction

This is a review of the accuracy and fairness of the Diamond Energy statements and the underlying analysis, which comprise the DE Emission Assessment (EA) methodology. It is an increasingly important market distinction to claim mainly or wholly renewable energy as the source of supply to the electricity grid. Importantly the auditor notes that any such statements must be made accurately and in accordance with accepted practices and laws to ensure credibility with customers and stakeholders alike.

Information Sources

Diamond Energy provided the statements, underlying analysis and the underpinning data, sourced principally from the following independent sources for the calendar years 2007 (commencement of generation) to 31 December, 2023:

1. The ***Australian Energy Market Operator (AEMO)*** is responsible for the overall management and regulation of the National Electricity Market (NEM) with various responsibilities including wholesale electricity market management and settlement between participants⁵. Diamond Energy has provided AEMO correspondence and data directly stating Diamond Energy electricity market purchases and generation supplies in MWh's.
2. The ***Commonwealth Clean Energy Regulator (CER)*** is responsible for the regulation of the Commonwealth Mandatory Renewable Energy Target (MRET) which includes accreditation of renewable energy generators and the creation and transfer of renewable energy certificates (REC's) by such generators⁶.

All Diamond Energy owned or controlled (under power purchase agreements (PPA)) market generators are accredited under the MRET scheme. Accreditation details were provided by Diamond Energy. The MWh output of Diamond Energy generators was also identified in the corresponding AEMO data in point 1 above.

3. ***GreenPower*** is a joint initiative of the ACT, NSW, SA, VIC and TAS governments and guarantees that the renewable electricity voluntarily bought by customers is helping to develop new infrastructure in the renewable energy sector⁷. Diamond Energy identified the MRET accredited renewable generators it owns or controls that are also GreenPower accredited.
4. The ***Greenhouse Gas Abatement Scheme (GGAS)***, regulated by the NSW Independent Pricing and Regulatory Tribunal (IPART) commenced on the 1st January 2003 and was the first mandatory greenhouse gas emissions trading scheme in the world⁸. Diamond Energy identified the renewable energy generators it owns or controls, that were registered under GGAS, and the tonnes of carbon pollution avoided as assessed under GGAS rules.

Diamond Energy has also provided the auditors with access to key Diamond Energy personnel, records and systems as appropriate to assist with the conduct of this audit as required.

⁵ Refer: <http://www.aemo.com.au/>

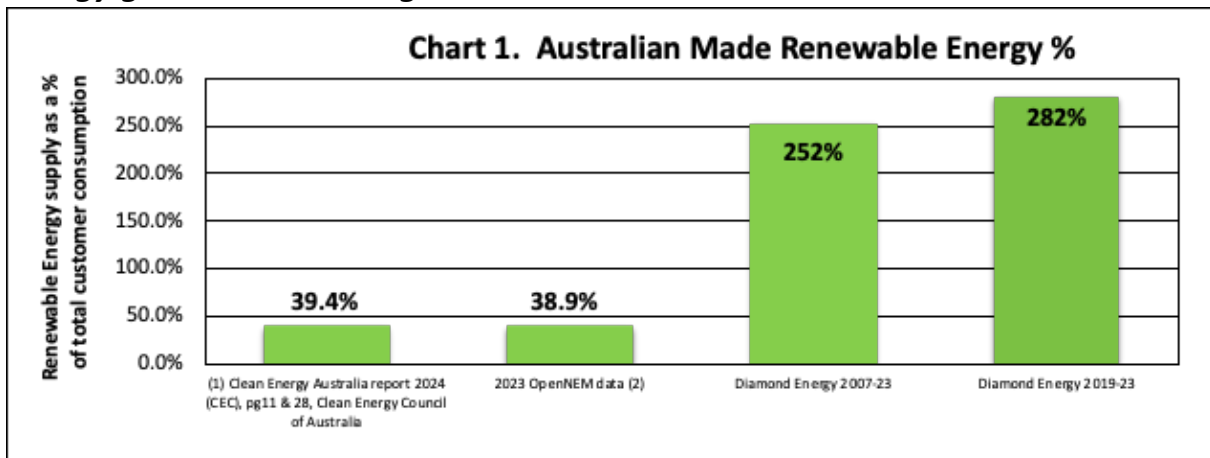
⁶ Refer: <http://www.cleanenergyregulator.gov.au/RET/Pages/default.aspx>

⁷ Refer: <http://www.greenpower.gov.au/>

⁸ Refer: http://www.ipart.nsw.gov.au/Home/Industries/Electricity/Greenhouse_Gas_Reduction_Scheme

Statement 1: Australian Made Renewable Energy Percentage

“Diamond Energy delivers more electricity sourced from Australian renewable energy generators to the grid than our customers consume.”



Using the AEMO renewable generator output (in MWh’s) and customer consumption data (in MWh’s supplied), Diamond Energy supplies on average 2.52 MWh of accredited renewable energy to the grid for each MWh of retail customer consumption over the period 2007-2023, whilst for the period 2019-23 the corresponding ratio is 2.82 MWh of renewable energy per MWh of retail customer consumption. In short, during the period 2019-2023, for each MWh received by retail customers, an additional 152% (1.52 MWhs) of renewable power is sold to the grid (for general use across the grid, i.e., ‘grid customer’). This compares with 2023 average Australian consumption of accredited renewable energy supply of only 39.4% of each MWh (see Chart 1 above) supplied on the grid and used by customers.

In both cases the data supports the statements above and the assumption that retail customers are the relevant denominator is supportable. For comparison, in 2023 Clean Energy Council report, the Australian average MWh comprised 39.4% accredited renewable supply per MWh of customer consumption⁹. Similarly, an analysis of the Open NEM data sources¹⁰, suggest that the combined renewable output of the NEM market may have been as high as 38.9% in 2023.

Given the above analysis, the auditor is comfortable that the statement above is fair and reasonable.

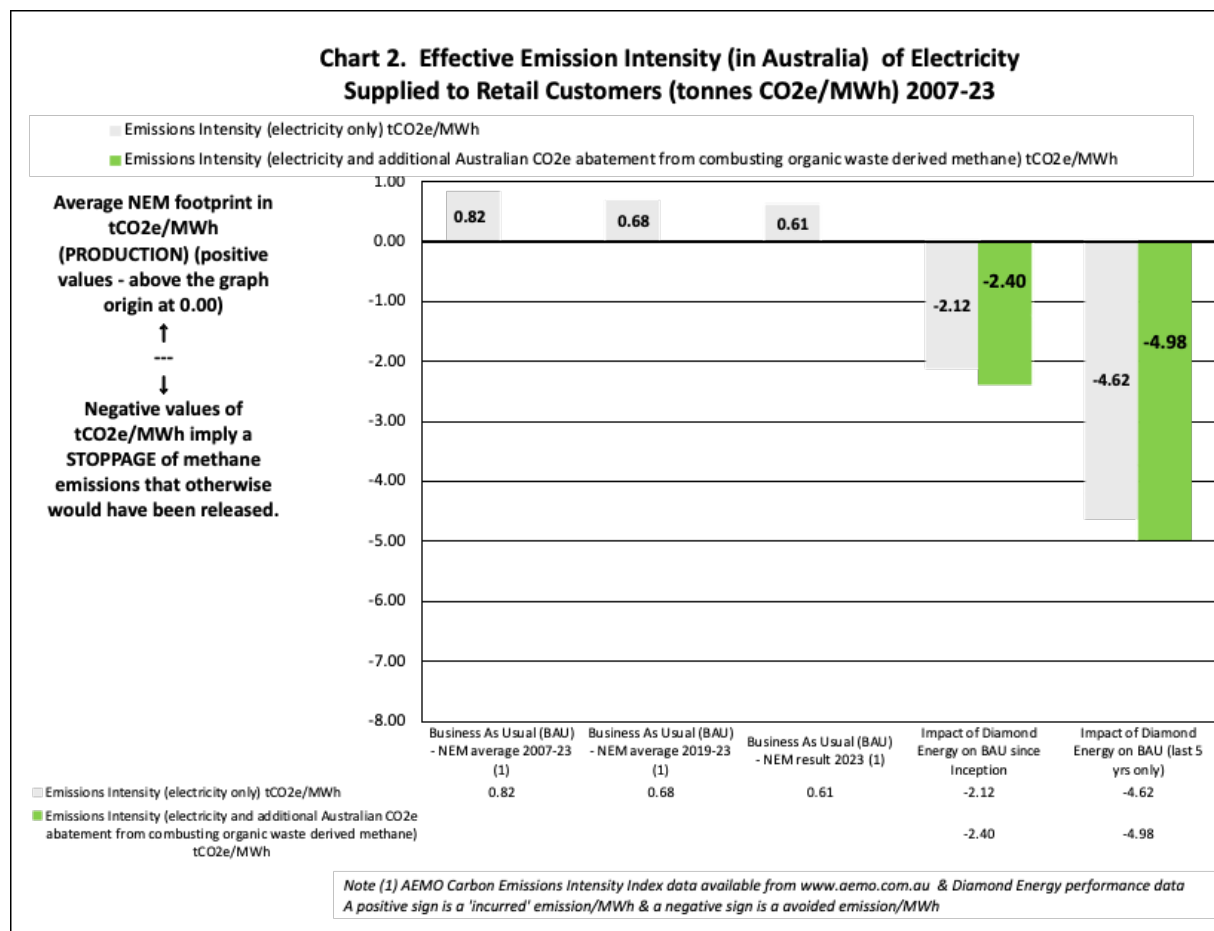
⁹ (CEC, 2024:11 & 28); Clean Energy Council, Report ‘Clean Energy Australia Report, web and PDF versions, 2023’, <https://www.cleanenergycouncil.org.au/policy-advocacy/reports/clean-energy-australia-report.html>.

¹⁰. <https://opennem.org.au/energy/nem/?range=7d&interval=30m&view=discrete-time>

Statement 2. Emissions intensity of sales

“Historically, the net greenhouse gas emissions abatement from Diamond Energy’s renewable energy generators exceeds the GHG emissions arising from the electricity consumed by our customers.”

Renewable electricity generation, by definition, has zero carbon emissions and displaces existing generation (at the prevailing NEM average emissions intensity, approximately and presently averaging 0.82 tonnes CO₂e/MWh¹¹) as would otherwise have occurred to meet the consumer demand at the time. Renewable energy plants that combust methane from organic sources, such as sewage plants operated by Diamond Energy, also produce biogenic CO₂ exhaust gas, as a by-product of destroying the more powerful greenhouse gas known as methane. This CO₂ is considered to be part of the biogenic natural carbon cycle and hence is not included as a greenhouse gas emission as per standard greenhouse gas auditing practice. New developments in the SBTi suggest that such CO₂e emissions should be accounted for as ‘biogenic CO₂e’. The data is presently being collected.



The analysis in regard to Statement 1 confirmed Diamond Energy supplied more accredited renewable electricity than that consumed by its retail (market) customers over the relevant periods. This mitigation strategy equated to an effective average emission **abatement** per MWh of retail customer consumption of 2.12 tonnes CO₂e/MWh and 2.4 tonnes CO₂e/MWh for the periods 2007-23 and 2019-23 respectively.

¹¹ NEM emissions intensity data as per that issued by AEMO (averaged 2007-2023), refer <http://www.aemo.com.au/Electricity/Settlements/Carbon-Dioxide-Equivalent-Intensity-Index>

Diamond Energy owned or controlled biogas generators also generate additional carbon emission **abatement** as assessed under GGAS rules (arising from the avoided methane emissions that would have otherwise occurred through the decomposition of organic matter).

Including this avoided methane abatement in the above analysis increases the effective emission **abatement** per MWh of customer consumption to approximately 4.62 tonnes CO₂e/MWh and 4.98 tonnes CO₂e/MWh for the periods 2007-23 and 2019-23 respectively.

The DE customer emissions mitigation strategy has been providing DE customers with a 'climate positive', net-negative emission approach since 2007. Each market customer, per MWh, is causing a negative flow of emissions for the electricity system, abating emissions which would otherwise have been produced.

From the perspective of the market customer, their negative impact is due to zero emission electricity, production of extra renewable electricity that supplies the grid and the combustion of methane that creates additional negative emissions. Each customer helps themselves with zero emission power, helps other NEM users and the economy to reduce their carbon footprint (three for the price of one).

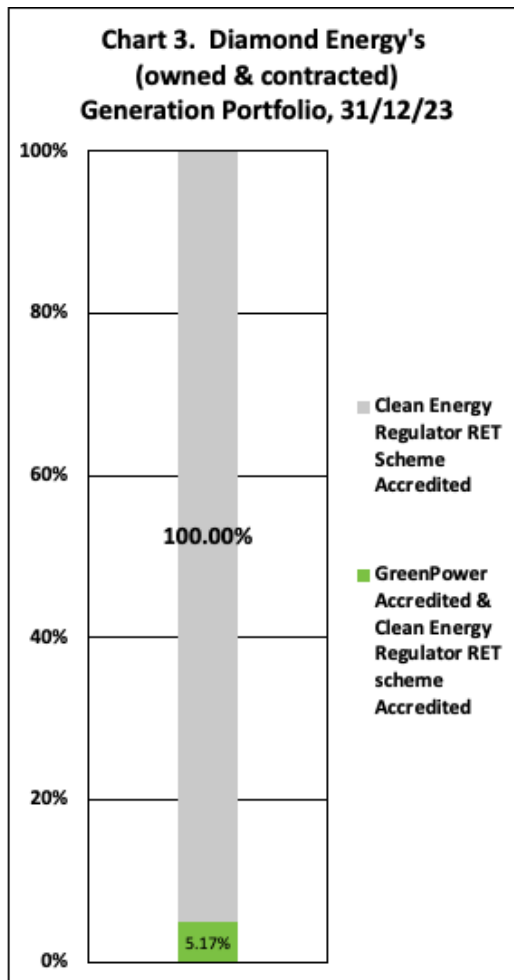
By contrast the SBTi Net-Zero framework measures emissions from the perspective of the DE value chain. A climate positive (negative emission), beyond net zero strategy¹² is defined as the abatement of emissions, plus the abatement of additional emissions plus the neutralisation of residual emissions, in the DE value chain, in excess of the Paris Climate Accord aligned, science-based, climate change mitigation scenarios. DE has been exceeding the Paris Accord climate targets every year, for all its market and grid customers since 2007, by two steps. Firstly, the DE value chain has provided power from renewable generation units, seven days per week, to every customer, since 2007. Secondly, due to DE and DE suppliers voluntarily combusting anthropogenic biogenic methane for some electricity production, that would otherwise have entered the atmosphere from organic and landfill waste facilities, DE and its value chain, have abated additional CO₂e emissions since 2007, and, hence, has been climate positive and accelerating society's movement towards a global Net-Zero GHG emission outcome since 2007 (assuming all other SBTi goals and conditions are being met). DE has very small residual emissions footprint from daily operations and legacy equipment such as generators, solar facilities and wind facilities that were originally manufactured with non-renewable energy. These are being measured as part of the DE footprint assessment.

Given the above and the underlying analysis, the auditor is sufficiently satisfied with respect to the veracity of the above statement.

¹². SBTi, (2021, pg 30-31); Foundations for Science-based Net-zero Target Setting in the Corporate Sector, consulting@francisgrey.com

Statement 3. Emissions Intensity of Assets

“Diamond Energy owned and controlled generation assets deliver a lower emission intensity than the grid average. Since inception our assets have delivered a net abatement of 2.12 tonnes of carbon dioxide equivalent per MWh of generated electricity. This is even greater if you include avoided emissions that would otherwise have been released from organic waste.”



The output of renewable generation displaces existing generation (assumed to occur at the prevailing NEM 2007-23 average emissions intensity, approximately 0.82 tonnes CO₂e/MWh as noted in Statement 2) from the national electricity market (NEM). This avoided generation would otherwise have met the consumer demand at the time.

Given this and the fact that all Diamond Energy owned, or controlled generation assets, are renewable (MRET accredited and sometimes also GreenPower accredited - refer chart left), this portfolio effectively results in a net **abatement** of 2.12 tonnes CO₂e/MWh generated, in regard to these assets, based on data used in Statement 2. The net abatement of 2.12 tCO₂e/MWh comprises, in part, 0.82 tCO₂e/MWh, due to renewables from DE displacing MWhs from other sources on the grid, with a net footprint of 0.82 tCO₂e/MWh. A further 1.3 tCO₂e/MWh of net abatement is created as DE renewable energy, excess to customer requirements, is supplied to the grid. Given this the auditors are sufficiently satisfied with the veracity of Statement 3 above.

As per the analysis presented under Statement 2, some Diamond Energy owned, or controlled, generation assets also result in avoided methane pollution as assessed under GGAS. If this additional abatement is included, the overall combined greenhouse gas emissions abatement intensity (tonnes CO₂e avoided/overall generator output in MWh's) for all Diamond Energy owned or controlled generation assets would be substantially higher.

DE generation has been assumed to include all market generation plants owned, or affiliated through contract, with DE, between 2007 and 2023, this excludes rooftop generation owned by 'market customers'. AEMO clearly defines market generators and market customers. Diamond Energy's biogas energy plants are market generators, and they reduce more emissions per MWh than rooftop solar. However, looking forward, rooftop solar has the potential to scale up in volume (MW's) at a much higher rate but for the purpose of this asset footprint analysis it has been excluded as it pertains only to market customers.

Given the above analysis, the auditor is comfortable that the statement above is fair and reasonable.

Statement 4. Renewable Energy Performance: Company Results

“Diamond Energy’s owned and controlled generation assets deliver more renewable energy than all their customers consume. “

The Clean Energy Council (CEC), Australian Electricity Market Organisation (AEMO) data visualisations, the Australian Energy Emissions Monitor¹³, ¹⁴, ¹⁵ and the OpenNEM project can be used to calculate the contribution of renewable generation¹⁶. Using the same methodology DE has calculated the contribution from its portfolio of generating assets and its load from all of its electricity customers.

DE has calculated their net position with data sourced from the Australian Energy Market Operator (AEMO) and calculated their “Renewable Energy Index” as per the approach of the Australian Energy Emissions Monitor, CEC, AEMO and OpenNEM. See Chart 1 for a direct comparison between DE performance, NEM+WA results from the Clean Energy Council and OpenNEM (NEM only).

The Clean Energy Council of Australia (CEC) provides an annual report that estimates the contribution of the renewable sector to Australian electricity production in the NEM and the WA SWIS network, as well as estimates of rooftop solar. In 2023 this proportion was 39.4% (see Chart 1).

It is notable that Australia has at least four additional electricity networks, plus additional gas networks, which are not included in such analyses. The NT electricity network is not included, though its energy generation is generally under 2 TWhs. The north-western Australia grid system does not seem to be included. In addition, the ‘off-grid’ network comprises many locations such as mines which generate electricity but are not grid connected and hence often not included in the overall picture of a NEM focussed analysis. It is also noted that transport emissions are not included and are growing rapidly. Finally, rooftop solar for self-consumption has often been excluded, though less so recently.

In Chart 1, for 2023, an estimate of 38.9% renewable electricity share for the NEM network has been provided which includes estimates for the ‘rooftop grid’. This data was sourced from the Open NEM project¹⁷.

DE has had a 100% renewable energy portfolio since inception. DE supplies 2.52 MWhs to the grid for each MWh consumed by its customers. The average NEM customer used 39.4% renewables in 2023 (CEC data¹⁸) whilst the average DE customer uses 100% renewables and additionally underpins the supply of a further 152% of renewables to the grid wholesale market.

Given the above analysis, the auditor is comfortable that the statement above is fair and reasonable.

¹³. ICED ANU, Institute for Climate, Energy & Disaster Solutions, Australian National University, Australian Energy Emissions Monitor, March 2023 <https://iced.s.anu.edu.au/australian-energy-emissions-monitor-march-2023>

¹⁴. ICED ANU, Institute for Climate, Energy & Disaster Solutions, Australian National University, Australian Energy Emissions Monitor, March 2023 <https://iced.s.anu.edu.au/australian-energy-emissions-monitor-march-2023>

¹⁵. <https://iced.s.anu.edu.au/australian-energy-emissions-monitor-march-2023>

¹⁶. <https://iced.s.anu.edu.au/australian-energy-emissions-monitor-march-2023>, <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/data-nem/data-dashboard-nem>, <https://aemo.com.au/energy-systems/electricity/wholesale-electricity-market-wem/data-wem/data-dashboard#generation-fuelmix>, <https://opennem.org.au/energy/nem/?range=all&interval=1y>, <https://www.cleanenergycouncil.org.au/resources/resources-hub>

¹⁷. OpenNEM data for all regions for the 2024 year - <https://opennem.org.au/energy/au/?range=1y&interval=1w&view=discrete-time>, plus, for reference only, AEEM, March 2023, Table 2, page 9; https://iced.s.anu.edu.au/files/AEEM%2003-23_3.pdf

¹⁸. Clean Energy Australia report 2024 (CEC), pg11 & 28, Clean Energy Council of Australia

Statement 5. Science Based Net-Zero Target Initiative (SBTi), 2021.

“Diamond Energy is meeting and exceeding it’s SBTi commitment to reduce its Scope 1 and Scope 2 GHG emissions by 2030.”

In 2020 DE committed itself to targets under the Science Based Targets Initiative (SBTi). In October 2021 SBTi launched the Net-Zero Standard for setting SBTi Corporate Net-Zero targets for 2030 and 2050.

The SBTi Net-Zero standard defines the concepts and the language that brings anthropogenic emissions into balance with anthropogenic withdrawals of CO₂ equivalent gases (Net-Zero)¹⁹. The standard also draws attention to the need for a ‘coalition of the willing’ [champions] to abate and neutralise faster than the 1.5C degree pathway, in order to make up for laggards²⁰ and reach interim goals of halving emissions by 2030.

The DE mitigation strategy abates faster than the 1.5c strategy and hence provides ‘headroom’ in the 1.5C degree pathway, increasing the probability of achieving Net-Zero. Going beyond the 1.5C degree pathway is presently defined as ‘climate positive’²¹.

SBTi Net-Zero has a hierarchy of actions, bounded by the company value chain, that firstly commit companies to abating GHG emissions within the value chain, as an immediate task before a net-zero target can be reached. Any residual emissions in the value chain will need to be ‘neutralised’ in order to reach the SBTi Net-Zero target. Value chain emissions are a company’s Scope 1, 2 and 3 emissions as defined by the GHG Protocol accounting standard.

‘Neutralisation’ is the removal of anthropogenic emissions already present in the atmosphere due to actions within or outside the value chain. Neutralisation can be implemented by, for example, carbon capture, alongside or after abatement has been maximised. ‘Neutralisation’ in the SBTi context refers to the elimination of remaining, hard to abate emissions, within the value chain, by techniques such as carbon capture.

‘Compensation’, as opposed to ‘neutralisation’, does not contribute to meeting SBTi targets. Compensation is done outside the value chain to assist others to reduce their emissions (e.g. financing efficiency projects in other countries) to balance emissions within the value chain. Companies can and are encouraged to ‘compensate’ for emissions but as stated this does not count towards the company’s own SBTi Net-Zero target. Within SBTi, ‘compensation’ is now called ‘Beyond Value Chain mitigation’ (BVCM).

DE has a mitigation strategy, since 2007, that eliminates (‘abates’) emissions from generation and creates ‘negative’ GHG emissions for its value chain, within the context of the United Nations Sustainable Development Goals (SDG’s). In every year since 2007 DE mitigation tactics have eliminated generation emissions in a process which also abates additional collateral emissions emanating from the energy input feedstock (methane from waste organic matter).

¹⁹. IPCC definition

²⁰. SBTi Net-Zero Standard, Version 1.0, October 2021, 0g 10, Section 2.4 & 2.5, Beyond Value Chain Mitigation

²¹. SBTi Net-Zero Standard, Version 1.0, October 2021, pg 9 &10 provide an overview without mentioning the term ‘climate positive’.

DE has built or contracted net zero emission generation systems which also reduce the additional collateral emissions. In effect, and by design, DE has had a climate positive mitigation strategy since 2007.

“DE has set its SBTI Net-Zero target at the lowest possible formal target of “1.5 degrees” and commits to reduce absolute Scope 1, Scope 2 and Scope 3 GHG emissions by 2030 from a 2018 base year²², and to measure and reduce its Scope 3 emissions using the “Green House Gas Protocol Value Chain (Scope 3) Accounting and Reporting Standard”.

DE has a set of generation assets that allow, since inception, the abatement of more emissions of carbon dioxide equivalent (CO₂e) gases, than is required just for generation alone. That is, to be clear, DE has a business structure and value chain whereby DE has contracted and owned renewable generation assets that eliminate emissions from generation, and has other contracted and owned renewable generation assets, that also eliminate emissions but also allow the abatement of additional, significant methane emissions.

The consequence of this growing portfolio is that DE, since inception, has contributed additional CO₂e avoidance beyond that required by ‘zero’ impact renewable generation. Other emitting entities are climate negative and struggling to reach zero emissions. DE, since inception has been generating ‘negative’ emissions by elimination and avoidance (climate positive) on an annual and a cumulative basis. DE is seeking to become even more ‘climate positive’ (carbon negative), as opportunities allow, by virtue of its SBTI Net-Zero target.

It should be noted that SBTI does not presently accommodate ‘negative emissions’/‘climate positive’ outcomes. DE has been achieving climate positive outcomes since 2007, allowing its customers to have zero emissions and, additionally, mitigate the impact of others who are still emitting. Chart 5 makes it clear that the SBTI 1.5 degree power sector pathway requires a 100 grams CO₂e/kWh emission rate by 2030²³. DE, by contrast, has been producing a negative emission rate per kWh since 2007.

Within its value-chain DE receives methane from biogenic sources, which it combusts to create electricity and biogenic CO₂. Generation sources excluding methane combustion, are solar and windpower. These have small Scope 1,2 and 3 footprints that have been estimated by the US National Renewable Energy Laboratory and the specific factors applied to this analysis.

DE states that it is ‘meeting and exceeding’ its SBTI goal. DE has set a goal for 2030 which is better than its 2018 baseline on an absolute emission basis. The following graphs show the track record of DE’s annual climate positive (negative) emissions since inception.

The first graph shows the annual absolute emissions volume of CO₂e gases in total grams. The results are clearly negative. The 2030 target is also clearly represented. As can be seen DE almost achieved the 2030 target in 2019, ten years ahead of schedule. This is continuing the trend set in 2018 and before. In 2023 the volatility of the generation mix saw a small increase from the lows of the 2022 result.

On the basis that target achievement is normally derived by linear emission reduction, it is quite clear that DE is ahead of schedule and has consistently been ahead since 2007. On this basis it can be said that DE is ‘meeting and exceeding’ its expected performance given the projected behaviour of the average SBTI signatory is normally a negative climate impact.

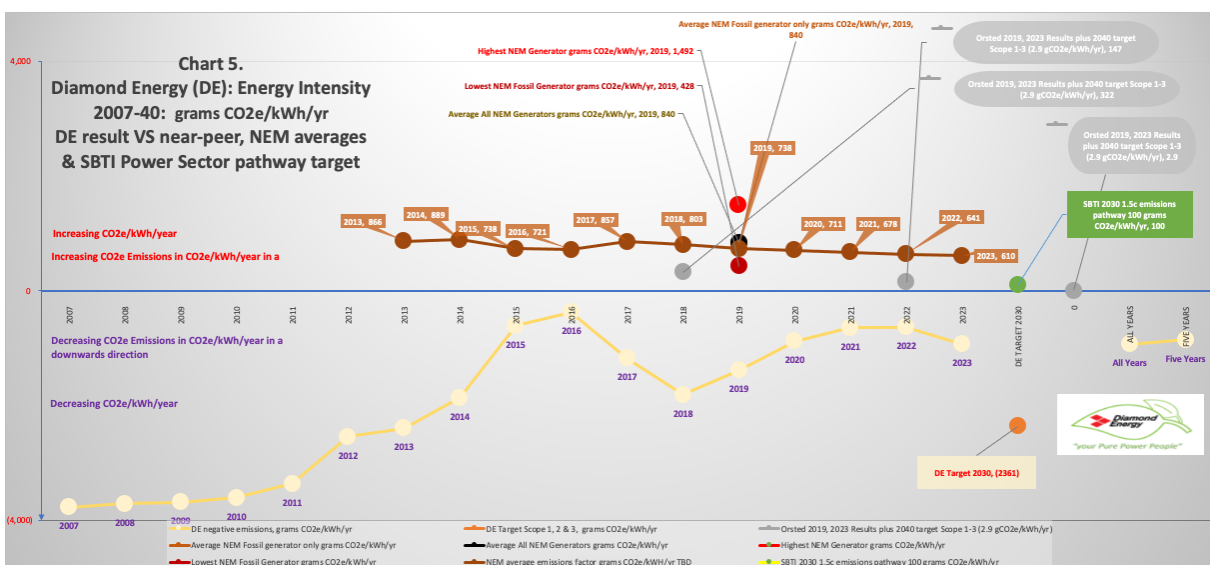
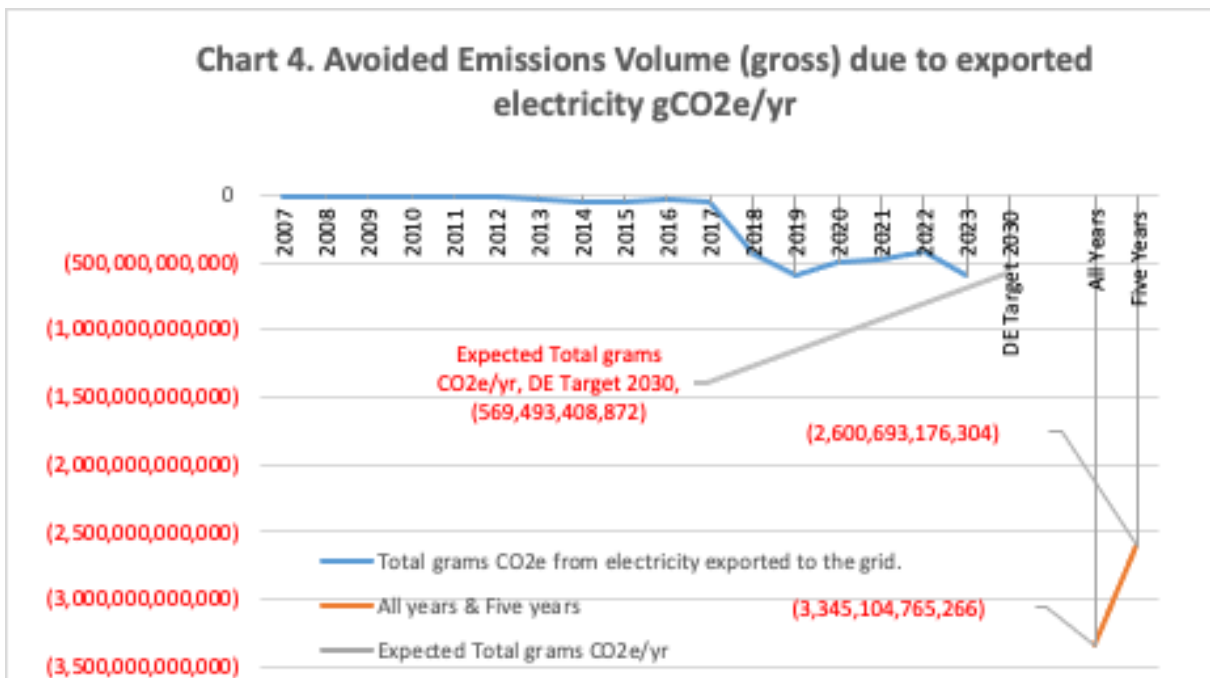
<https://sciencebasedtargets.org/resources/?p=resources>

²³. SBTI, (2024:11), Setting 1.5°C-Aligned Science-based Targets: Quick Start Guide for Electric Utilities, June 2020.

DE has a plan to map all its Scope 1, 2 and 3 emissions, as well as the biogenic emissions, in addition to generation related emissions, as part of its progress towards its 2030 targets. Residual emissions, for example, from relatively minor areas such as office waste or staff travel, must be neutralised or abated at some point to fully deliver the SBTI Net-Zero target. Boundary setting and mapping of the Scope 1,2 and 3 emissions is also mandatory to hit the targets. It is clear that DE is massively ahead of schedule (based on annual emission abatements and annual negative emissions), though with some mapping and reporting tasks ahead to meet SBTI entry conditions, and then intercept, its SBTI target.

Further, the second graph shows how DE's negative carbon emission intensity, on a grams CO₂e/kWh/year basis, is strongly ahead of the 1.5^o degree IPCC target as determined by SBTI at 100 grams CO₂e/kWh, as well as national and international industry's actual positive carbon emission intensity by a significant margin. This has been so since inception.

Given the above analysis, the auditor is comfortable that the statement above is fair and reasonable.



Statement 6. DE Greenhouse Gas Inventory (GHG), 2022.

“For entities that report Scope 2 emissions, for electricity purchased from Diamond Energy, and for electricity consumed from the NEM in 2023, Diamond Energy has calculated it’s “supplier-specific”, weighted average emission rate (SEF) factor to be lower than 0.0 tonnes of CO₂e/MWh (unadjusted for customers specific site loss factors).”

DE has estimated a “supplier-specific”, weighted average emission rate (SEF) factor of negative -0.92 tonnes of CO₂e/MWh (unadjusted for site specific site loss factors). This is for the entire generation portfolio comprising sub-portfolios of rooftop/utility PV, wind (PV/Wind) and biogas/landfill gas (BG/LFG). Customers of DE can apply an estimated specific emission factor of zero, as per Statement 6, to their purchases of DE electricity, in order to calculate their Scope 2 emissions.

Estimates have been used as DE is still implementing the SBTi/GHG Protocol Net-Zero methodology and some data is not readily available. Estimated lifecycle analysis of PV and wind assets across Scopes 1, 2 and 3 indicate emissions intensity (emissions factor) of positive +.04 tCO₂e/MWh for utility scale PV and positive +0.001 tCO₂e/MWh for wind generation. These estimates were compiled by the US National Renewable Energy Laboratories (NREL). DE has applied these estimates to its portfolio assuming a much higher level of PV than is likely, and hence likely overstating the emissions from PV and wind. This will be adjusted over time.

Estimates of biogas and landfill gas emission factors are based on conversion factors supplied by NSW Greenhouse Gas Abatement scheme (NGAC’s - Footnote 20), and The Climate Registry (TCR) Electric Power Protocol. SBTi Net-Zero and TCR recommend that biogenic CO₂ emissions from combusting BG/LFG should also be published alongside emission data. When BG/LFG is combusted, methane is converted to CO₂, a much less powerful greenhouse gas. This is called biogenic CO₂ because it is CO₂ captured in organic matter (e.g., plants, animals etc.) that is simply returning to the atmosphere from which it was originally derived.

In 2023 anthropogenic emissions for DE were a weighted estimate SEF of positive +0.03 tCO₂e/MWh for the PV/Wind portfolio, net negative SEF of -0.95 tCO₂e/MWh for the BG/LFG assets (ie. after accounting for biogenic emissions), giving a total, DE portfolio-wide SEF of -0.92 tCO₂e/MWh for 2023. This is compared with a positive SEF +0.61 tCO₂e/MWh for NEM derived electricity. The NGACs estimated biogenic emission intensity is positive +0.00199 tCO₂e/MWh²⁴ for biogenic carbon.

Generating with the DE BG/LFG methane portfolio in 2023, reduced CO₂e emissions by an estimated 3.78 tCO₂e/MWh through methane destruction, after accounting for fugitive emissions. No emission offsetting has been used. Methane combustion can produce ‘fugitive’ methane (CH₄) and nitrous oxide (NO₂) hence an estimated biogenic carbon intensity of positive +0.00199 tCO₂e/MWh (Footnote 20) has been deducted to derive a net negative reduction of 3.78 tCO₂e/MWh. For every 100,000 MWhs of BG/LFG generation, a net 378,000 tCO₂e was abated after taking account of 199 tCO₂e from fugitive emissions.

Given the above analysis, the auditor is comfortable that the statement above is fair and reasonable.

²⁴. Based on NGACs data for landfill gas, using natural gas as a proxy, Source - IPART GtA-Gen guide 07.pdf, pg 64, NGAC related GGAS methodology, http://www.ipart.nsw.gov.au/Home/Industries/Electricity/Greenhouse_Gas_Reduction_Scheme

Conflicts of Interest Statement

It is necessary for auditors to state whether they have any conflicts of interest in performing an audit.

Francis Grey received payment from Diamond Energy to perform this audit, as is standard practice.

Francis Grey has no conflicts of interest in relation to this audit, He has no financial or other interest in the performance of DE. He introduced the Dow Jones Sustainability Index (DJSI) corporate sustainability assessment and rating system to the Australian Top 200 ASX listed companies in the period from March 2000 to July 2013. He has had an ongoing investment in biogas to energy systems, that also creates avoided greenhouse gas pollution, as well as renewable energy. This provides a useful insight into the DE generation process and is not a conflict of interest.

Previous Audit Reporting for DE in relation to the emissions intensity of DE generation.

This is the sixth audit report conducted by Francis Grey for DE. The first audit report was in October 2015, the second in October 2017 and the remainder in 2019, 2021, 2022 and 2023.