

Independent Verification Opinion

Verification Opinion No.:
C678303-2023-AG-TWN-DNV

Issued Place:
Taipei

Issued Date:
09 May, 2024

This is to verify initiate reporting of Greenhouse Gas Inventory Management Report (2023) of

GAMANIA DIGITAL ENTERTAINMENT CO., LTD.

Scope of Verification

DNV Business Assurance (DNV) has been commissioned by GAMANIA DIGITAL ENTERTAINMENT CO., LTD. ('the Organization') to perform a verification of the greenhouse gas statements of Greenhouse Gas Inventory Management Report (2023) (hereafter the "Inventory Report") in Taiwan, ROC with respect to the sites listed in Appendix A.

The Reporting Boundary for the verification including direct GHG emissions and removals, indirect GHG emissions from imported energy, indirect GHG emissions from transportation, indirect GHG emissions from products used by the Organization and indirect GHG emissions associated with the use of products from the Organization. The further descriptions for the Reporting Boundary listed in Appendix B.

Verification Criteria and GHG Programme

The verification was performed on the basis of ISO 14064-1:2018 as well as criteria given to provide for consistent GHG emission identification, calculation, monitoring and reporting. The verification was conducted in accordance with ISO 14066:2011, ISO 14065:2020, ISO14064-3:2019

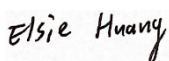
Verification Opinion

It is DNV's opinion that the Inventory Report (2023), which was published on April 2024 is free from material discrepancies in accordance with the verification criteria identified as stated above. The opinion is decided based on the following approaches,

- For the Direct (Category 1) and Indirect GHG emissions from imported energy (Category 2), the reliability of the information within the Inventory Report (2023) were verified with reasonable level of assurance.
- For the other indirect GHG emissions, the involved information was verified and tested using agreed-upon procedures, AUP, defined in Inventory Report.

Also, the GHG information as stated in Appendix C has been verified during the process.

Huang, Yi Zhu Elsie
GHG Verifier



Place and date:
Taipei,

For the issuing office:

DNV Business Assurance Co., Ltd.
29Fl., No. 293, Sec. 2, Wenhua Rd.,
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220, Taiwan



Management Representative

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Supplement to Verification Opinion

Process and Methodology

The reviews of the Inventory Report and relevant documents, and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

Quantification of Greenhouse Gas Emission

The Inventory Report covering the period 1 January, 2023 to 31 December, 2023, it is DNV's opinion that GHG emissions and removals identified within the Reporting Boundary has been included in the Inventory Report as claimed in accordance with the verification criteria identified as stated above, and results in quantification of GHG emissions that are real, transparent and measurable.

Organizational Boundary of Verification

Financial Control Operational Control Equity Share

GHGs Verified

CO₂ CH₄ N₂O HFC_s PFC_s SF₆ NF₃

The Quantification of GHG emissions:

Category		Emission (kg CO ₂ e)
Category 1	Direct GHG emissions and removals	193,463.282
1.1	Stationary combustion emissions	8130.721
1.2	Mobile emissions	-
1.3	Industry process	-
1.4	Fugitive emissions	185332.561
Category 2	Indirect GHG emissions from imported energy*	4,559,764.016
2.1	Indirect emissions from imported electricity	4,559,764.016
Category 3	Indirect GHG emissions from transportation	613,291.260
3.1	Emissions from upstream transport and distribution for goods	4.621
3.2	Emissions from downstream transport and distribution for goods	19,563.102
3.3	Emissions from employee commuting	532,640.141
3.4	Emissions from business travel	61,083.396
Category 4	Indirect GHG emissions from products used by an organization	1,918,753.151
4.1	Purchased goods and services (including purchased energy)	903811.222
4.2	Emissions from capital goods are emissions from goods that are purchased and amortized by the organization	767,687.179
4.3	Emissions from the disposal of solid and liquid waste	19396.004
4.5	Emissions from services used by organization	227,858.746
Category 5	Indirect GHG emissions associated with the use of products from the organization	1,257,437.088
5.1	Emissions from downstream leased assets	1,257,437.088
Total		8,542,708.797

(The Imported Energy Indirect Emissions was calculated based on 2022 electricity emission factor of 0.495 kg CO₂-e/kwh, which was announced by Bureau of Energy, Ministry of Economic Affairs. The Global Warming Potential (GWP) defined in IPCC AR6 (2021) has been chosen and correctly referred by the Organization.)

*During the verification process, confirmed that 1,331,232 kilowatt-hours of renewable energy were used, and 901 certificates from the National Renewable Energy Certification Center.

(https://www.trec.org.tw/certification_trade_situation/direct_supply?year=2023)

The renewable energy from solar and wind power emissions factor of 0 was calculated based on 2024 Greenhouse Gas Emissions Inventory published by the Environmental Protection Administration.

Verification Opinion

unmodified modified adverse

Appendix to Verification Opinion No. C678303-2023-AG-TWN-DNV

APENDIX A

The greenhouse gas statements of Gamania Digital Entertainment Co., Ltd. Greenhouse Gas Inventory Management Report (2023) with respect to the following sites:

Site	Organization	Address
1	遊戲橘子數位科技股份有限公司總部 Gamania Digital Entertainment Co., Ltd. (HQ)	台北市內湖區瑞湖街 111 號 No. 111, Ruihu St., Neihu Dist., Taipei City, Taiwan (R.O.C.)
		台北市內湖區陽光街 365 號 (停車場) Ln. 365, Yangguang St., Neihu Dist., Taipei City, Taiwan (R.O.C.)
2	遊戲橘子總部 158 號 Gamania Digital Entertainment Co., Ltd. Site 158.	台北市內湖區瑞湖街 158 號 3 樓 3F., No. 158, Ruihu St., Neihu Dist., Taipei City 11494, Taiwan (R.O.C.)
3	遊戲橘子總部 88 號 Gamania Digital Entertainment Co., Ltd. Site 88.	台北市內湖區瑞湖街 88 號 6 樓之 2 6F.-2, No. 88, Ruihu St., Neihu Dist., Taipei City 114671, Taiwan (R.O.C.)
4	今日傳媒股份有限公司 NOWnews Network Co., Ltd.	台北市內湖區瑞湖街 160 號 3 樓 3F., No. 160, Ruihu St., Neihu Dist., Taipei City 11494, Taiwan (R.O.C.)
5	樂利數位科技 Jollywiz Digital Technology Co., Ltd.	台北市內湖區瑞湖街 88 號 3 樓之 3 3F.-3, No. 88, Ruihu St., Neihu Dist., Taipei City 11494, Taiwan (R.O.C.)
6	果核數位 (中和機房) Digicentre Company Limited (Zhonghe server room)	新北市中和區中正路 736 號 14 樓 14F., No. 736, Zhongzheng Rd., Zhonghe Dist., New Taipei City, Taiwan (R.O.C.)
7	果核數位 (國分機房) Digicentre Company Limited (Guo-fen server room)	台北市愛國東路 31 號(3F、4F、6F、7F) 3F., 4F., 6F., 7F., No. 31, Aiguo E. Rd., Zhongzheng Dist., Taipei City, Taiwan (R.O.C.)
8	果核數位 (富國機房) Digicentre Company Limited (Fu-Guo server room)	桃園市富國路 100 號 No. 100, Fuguo Rd., Taoyuan Dist., Taoyuan City, Taiwan (R.O.C.)
9	客服中心 (蟻力) Ants' Power Co., Ltd.	新北市中和區中正路 736 號 8 樓 A1、12 樓之 4 8F A1., 12F.-4, No. 736, Zhongzheng Rd., Zhonghe Dist., New Taipei City, Taiwan (R.O.C.)
10	幼橘園 GamaGarden	台北市內湖區港墘路 221 巷 33 號 1 樓 1F., No. 221, Gangqian Rd., Neihu Dist., Taipei City, Taiwan (R.O.C.)

APENDIX B

The Reporting Boundary of Gamania Digital Entertainment Co., Ltd. Greenhouse Gas Inventory Management Report (2023)

Category	Reporting Boundary* description	Sub-category	Emission Source	Applied Site(s)
Direct GHG emissions and removals	The business of GAMANIA and its Affiliated Enterprise is mainly in the multi-dimensional digital technology industry, and the operating resources are mainly the offices where human power is located. Its main direct sources of GHG emissions are the company's generator diesel emissions, refrigerant emissions HFCs. There is a septic tank for sewage treatment. In addition, the headquarters and the GamaGarden will purchased natural gas, which will generate CO ₂ , N ₂ O, and CH ₄ when used.	1.1 Stationary combustion 1.1 固定式燃燒排放源	Diesel generator 發電機	Site 1, Site 6
			Natural Gas Pipelines 天然氣	Site 1
			Liquefied petroleum gas 液化石油氣	Site 1, Site 10
		1.4 Fugitive emissions 1.4 逸散性排放	Chiller/air conditioner/refrigerator/water dispenser 冰水機/冷氣/冰箱/飲水機	Site 1, Site 2, Site 4, Site 5, Site 6, Site 9, Site 10
			Septic tank 化糞池	Site 6
Indirect GHG emissions from imported energy	Long-term use of computers, lighting equipment, refrigerators, air conditioners and other equipment accounts for the largest proportion of total emissions due to indirect emissions from input energy, and is the largest source of greenhouse gas emissions, among which the most important corresponding emission items is the electricity consumed in office and public area, and the types of greenhouse gas emissions include CO ₂ generated by electricity. HQ used 1,331,232 kilowatt-hours of green electricity, corresponding to 901 renewable energy certificates registered.	2.1 Imported energy 2.1 外購能源	Imported electricity 外購電力	All Site
			Imported renewable energy 外購再生能源	Site 1
Indirect GHG emissions from transportation	Among the indirect greenhouse gas emissions from transportation, the sources of activities or facilities projects include emissions from employee commuting and employee travelling, as well as the downstream goods transportation due to e-commerce shipments from JollyBuy. Among them, employee commuting accounts for the largest proportion of emissions, downstream transportation is the second, and employee travel is the last. Greenhouse gas emissions come from the consumption of gasoline or electricity to generate CO ₂ .	3.1 Upstream Transportation 3.1 上游運輸	Upstream Transportation 上游運輸	Site 1 (JollyBuy)
		3.2 Downstream transport 3.2 下游運輸	Downstream transport 下游運輸	Site 1 (JollyBuy)
		3.3 Employee commuting 3.3 員工通勤	Employee commuting 員工通勤	All Site
		3.5 Business travel 3.5 商務旅行	Business travel 商務旅行	Specific departments in Site 1, Site 2, Site 4, Site 5, Site 6
Indirect GHG emissions from products used by the Organization	The main workplace of GAMANIA and its Affiliated Enterprise is in the office, so the indirect greenhouse gas emissions from the use of products or services by the organization mainly include indirect	4.1 Products used by organization 4.1 源自採購商品的排放	Purchased electricity 外購電力	All Site
			Purchased neutral gas 外購天然氣	Site 1

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid. This Verification Opinion is based on the information made available to us and the engagement conditions detailed above. Hence, DNV cannot guarantee the accuracy or correctness of the information. DNV cannot be held liable by any party relying on or acting upon this Verification Opinion.

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DNV ZNATW-OP-F50, Rev.11, 2024-4

	emissions from purchasing electricity, energy including diesel, and natural gas, and capital goods including computers, notebooks, screen and server and tap water. In addition, there are also emissions from office waste disposal, however for those offices other than GAMANIA Headquarters, the related emissions were not included in the quantification due to outsourcing of waste management. In addition, emissions from the use of Public cloud services are also included in this category.		Purchased Liquefied Petroleum Gas 外購液化石油氣	Site 1 , Site 10
			Purchased diesel 發電機外購柴油	Site 1, Site 6
			Tap water 辦公室自來水使用	Site 1, Site 2, Site4, Site 5, Site 6, Site 9, Site 10
		4.2 Capital goods that are purchased and amortized by the organization. 4.2 資本商品的排放	Capital goods including computers, notebooks, screen and server 企業資本財 (電腦、筆記型電腦、伺服器、螢幕)	Site 1, Site 2, Site4, Site 5, Site 6, Site 9, Site 10
		4.3 The disposal of solid and liquid waste 4.3 固體和液體廢棄物處理	The disposal of solid and liquid waste outsourcing. 固體廢棄物委外處理 排放	Site 1
	4.5 Use of services 4.5 使用其他服務產生的排放	Public cloud 公有雲	Site 1	
Indirect GHG emissions associated with the use of products from the Organization	The main products and services provided by GAMANIA and its Affiliated Enterprise are online games and related e-commerce consulting services, media, etc.	5.4 Emissions from downstream leased assets 5.4 下游租賃資產產生的排放	Energy use from leased to other entities 異業客戶電量使用	Site 7, Site 8
			public cloud use from leased to other entities 異業客戶公有雲使用	Site 1

The scope of other indirect emissions (other than Imported Energy with specified/limited list of sources) was defined by GAMANIA DIGITAL ENTERTAINMENT CO., LTD.'s own pre-determined criteria for significance of indirect emissions, considering the intended use of the GHG inventory.

APPENDIX C

The Reporting Boundary of Gamania Digital Entertainment Co., Ltd. Greenhouse Gas Inventory Management Report (2023)

Indirect emissions verification procedures:

Category	Subcategory	Verification Procedures
Category 2	2.1 Imported electricity	-Bill and invoice from suppliers or landlord
Category 3	3.1 Upstream transportation and distribution	-Weight of in-coming goods and raw material report -Distance of transportation from supplier
	3.2 Downstream transportation and distribution	-Weight of out-coming goods and raw material report -Distance of transportation from client
	3.3 employee commuting	-Types of Employee Commuting Vehicles -commuting distance
	3.4 business travel	-Types of travel transportation -travel distance
Category 4	4.1 Upstream purchased goods transportation and distribution	-Weight of in-coming goods and raw material report
	4.1 Purchase Fuel and Energy Emission (Indirect emissions not included. in Cat.1 & Cat.2)	-Bill and invoice from suppliers
	4.2 Capital goods that are purchased and amortized by the organization	-purchase amount
	4.3 Waste treatment and transportation	-Weights of solid and liquid wastes from contractors contract and bills - Distance of transportation from Gamania Digital Entertainment Co., Ltd., sites to treatment sites
	4.5 services used by organization	-The carbon emission data provided by public cloud providers.
Category 5*	5.4 downstream leased assets	- Energy use from leased to other entities - The carbon emission data provided by public cloud providers.
Category 6*	Indirect GHG emissions from other sources	Not Significant Emissions

NOTE: Category 6 were evaluated as Not Significant Emissions base on Gamania Digital Entertainment Co., Ltd.'s significant emission identification process reported in GHG inventory report.

APPENDIX D

For direct emissions and removals, quantified separately for each GHG as below:

GHG Type	CO ₂	CH ₄	N ₂ O	HFCs	PFCs	SF ₆	NF ₃	Total
Emissions (kg CO ₂ e)	8,118.744	944.065	6.912	184,393.561	0	0	0	193,463.282
Proportion (%)	4.20	0.49	0.00	95.31	0	0	0	100