Appendix 1.3
Herbata Data Centre Sources of Energy Report

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HERBDATA DATA CENTRE SOURCES OF ENERGY

A. BOS ENERGY LTD

Brian O' Shea of BOS Energy Ltd has over 25 years' experience in the Energy Sector, extending back to the late 1990's prior to the introduction of competition or regulation. This experience extends across more than 23 years with Bord Gais Energy Ltd and the past number of years as an advisor across the industry both electricity and gas sectors as BOS Energy Ltd.

Brian has concluded multiple forms of energy agreements during this period including various forms of Power Purchase Agreement (PPA) building a PPA portfolio of more than 500MW with renewable generators including wind, hydro and solar and now supports various Energy participants and Renewable Energy developers in the negotiation of PPAs here in Ireland and also across Europe.

As per engagement letter with Herbata Limited of earlier this year where BOS Energy Ltd will support Herbata in securing offtake from renewable assets and to this end BOS Energy Ltd has extensive relationships within the renewable development community in Ireland and across both electricity and gas.

Below is a clear Energy Strategy for the proposed Data Centre project to secure energy from renewable sources and to which BOS Energy Ltd will be able to support the implementation of same.

B. MARKET SUMMARY

The Gas and Electricity Grid operates on a "Pool" based system whereby all generation is delivered into a single system (pool) and offtake is from this same system (pool), this results in all forms of energy, be that renewable or otherwise, being comingled.

It is, as a result of this commingling, that the Europe Union (EU) devised a certification system which independently verifies the source and output of energy from renewable assets, thereby allowing parties to trace the origin of their energy supply back to the production facility, the energy equivalent of 'farm to fork'. This certification process for electricity referred to as Guarantees of Origin (GO) is now fully implemented and operational in each jurisdiction across the EU as evidence of supply from renewable source.

The GO equivalent for Gas, from renewable sources, is now also accepted by the Environmental Protection Agency (EPA), in Ireland, as evidence of renewable gas consumption on site and thereby avoiding the requirement to procure Carbon Credits (EUAs) under the Emission Trading Scheme (ETS) for the volume certified, to which all Data Centres as party to the ETS are subject to compliance of ETS rules as overseen by the EPA.

Current legislation does not permit private wire connections between end users' site and third-party lands and while onsite rooftop solar is exempt from planning the typical roof will only, at best, provide a few MW of capacity which when adjusted for sunlight hours will only provide a fraction of site requirements.

Given the limitations of both planning and absence of legislation permitting private wire connections, renewable supply is sourced through Corporate Power Purchase Agreement (CPPAs) in locations providing the most favourable condition and then delivered into the grid with this production being evidenced as renewable by the associated GOs issued from the respective Grid Operators.

CPPAs are entered into by end users to directly purchase and support the production from renewable sources and receive the associated GOs as the evidence of renewable supply.

C. SUMMARY OF ENERGY SUPPLY STRATEGY

Herbata plans to have the ability to produce all energy needs onsite and capability to be independent of the Grid, but in line with Kildare County Council policy and to provide Eirgrid with support services, Herbata will (i) procure a minimum of 30% of site requirements from renewable generation plus (ii) make available to Eirgrid the onsite generation capability providing much needed generation particularly during periods of stress on the Grid system.

Each Data Centre Building will require on average 36MW[1] base load demand across the 12month period up to a maximum of 40MW at any one time.

Considering the Data Centre imports from the Grid will be circa. 30% in any month this equates to equivalent of 10.8MW[2] baseload supply for each Data Centre Building to achieve 100% renewable supply from Grid. To achieve this target in each month will require entering CPPAs for 35MW of Wind and 35MW of Solar being sustainable renewable power, which amount should ensure that the 10.8MW of baseload in the month but is expected to achieve circa. 40% over a 12month period *(see below Table 2 – Volume).*

Given the variable nature of both Wind and Solar and market costs associated in managing the surplus and deficit production from these sources, Herbata will seek to manage this volatility through use of onsite stable generation. This on-site generation be in the form of Battery or dispatchable asset with a goal to source the input fuel from Green Gas produced from Anaerobic Digestion (AD) as and when they come onstream between now and 2030.

Supply from AD will require Herbata to enter long term agreements to support the AD project but this price stability will also provide price certainty for the facility.

This portfolio approach to supply will provide resilience and stability to the energy needs of the site but also provide the Export Dispatch capability from the site as will be required by Eirgrid. Herbata will in turn provide support to the Grid through exporting on site generation during periods when grid generation is challenged and assisting to stabilise grid by adjusting imported consumption during periods of high renewable supply and will continuously facilitate Grid requirements in line with evolving grid needs, known as Demand Side Management

Herbata will continuously be seeking to source the energy needs from sustainable renewable sources applying a supply portfolio strategy with the initial mix of Wind and Solar through CPPAs, as described above, to ensure that 100% of Grid imported energy will be from renewable production. The Strategy will also seek for onsite generation to utilise renewable fuels as they become available with ultimate goal of achieving net zero carbon consumption through close monitoring of CO_2/KWh usage.

D. ENERGY SUPPLY STRATEGY

Herbata will source renewable energy from a portfolio of supply arrangements which will include the following:

1. On site solar production and battery for short term stabilisation and storage,
2. Electricity from renewable sources contracted through Corporate Power Purchase Agreement (CPPAs) directly with the Generator, both wind and solar to ensure 100% of the imported energy off taken from the Grid will be renewable sourced supply,
3. In addition to the 30% of needs from gird the remaining 70% is being provided from onsite Generation utilising Hydrogenated Vegetable Oil (HVO) initially but quickly seeking to supplement with Green Gas

[1] MW is Mega Watts

[2] 36MW * 30% = 10.8MW

Production from Biomethane producing facility such as Anaerobic Digestion (AD) facilities as they come online, or natural gas where the above fuels are not available *(see below Table 3 of projected AD growth)*.

4. Further developing and evolving the strategy with the ultimate goal of Net Zero Supply through use of available renewable energy both electricity and input fuel for onsite production.

In addition to CPPAs onsite energy will also seek to utilise renewable fuels such as Biomethane through supporting the development of renewable projects including AD facilities and in doing so support a circular economy.

1. On Site Solar

It is proposed to maximise the suitable roof top with solar panels which will equate to 0.5MW per each Data Centre Building of onsite solar installed generation. This capacity is expected to provide 480MWh.pa of production equating to circa 1% of overall demand.

2. Renewable Corporate Power Purchase Agreements

CPPAs are a contract between Renewable Generating assets such as wind and solar and final end users such as Data Centres. This energy is delivered into the Grid by the renewable assets and equivalent amount off taken by the end users. The evidence of supply is completed through a Guarantee of Origin (GO) issued by the Gird operators for each MWh[3] of energy produced by the renewable assets.

Herbata plans to secure off site energy from renewable sources through CPPAs. These will be a mix of Wind and Solar to provide better overall production portfolio. This approach will facilitate smoothing of production from these renewables given that Wind production is predominantly winter weighted and Solar is summer weighted *(see below Table 3 – Graph)*.

Herbata will source 100% of Grid imported energy for each Data Centre Building from a combination of circa 35MW of Wind and circa 35MWpdc of solar which will complement each other providing a consistent supply above 100% throughout the year taking account the variable production profile of these asset types (*see below Table 2 – Volume*).

These CPPAs for each Data Centre Building will be entered into prior to operational requirements and from a newly renewable energy generation not operational at time of receipt of planning and therefore additional renewable supply to the Grid. The timing for entering these CPPA will align with the construction program and with a 2year plus lead time which will in turn will also align with the renewable asset's construction program.

It is important that Herbata develops early relationships with various Renewable Developers to ensure access to their pipeline of assets to enter CPPA on receipt of planning consent.

Given the construction asset's will be over an 8year period from now to 2032 this will align with the projected growth in renewable assets being developed in Ireland *(see below Table 1)*.

3. On Site Green Generation

To support Net Zero strategy Herbata must plan to be a strong supporter of Biomethane production from offsite Anaerobic Digestion (AD) facilities, delivered to site through onsite injection point or off taking from the Gas Network. It is anticipated that there will be significant growth in AD facilities forecasted between now and 2030 *(see below Table 4)*. These fuels will provide the renewable form of feedstock for operating onsite

[3] MWH – Mega Watt Hour – volume produced in an hour

generation which will supply on site energy needs as well as assisting the management of intermittency typically associated with wind and solar.

This intermittency will be known in advance of each day through support of specialist providers and advanced forecasting tools to manage the supply across the portfolio of sources. This forecast will enable advance management and scheduling of available on-site generation, grid imports and any grid export needs to ensure smooth supply and cooperation with Eirgrid.

AD facilities produce Biomethane from, for example, agricultural and food waste this provide stable form of fuel supply while also reducing the agricultural methane level from national herd, plus converts the agricultural waste to a fertiliser to be returned to the farming community and reducing the level of nitrates applied to the land which further meets with the recently enacted Nitrates Acts.

Biomethane as a replacement fuel for Natural Gas is commonplace in Europe but requires government subsidies however no such support exist today in Ireland. It is the intention of Herbata to support this renewable source through long term supply arrangement with AD producers at a price level to support their production and injection into the grid and reducing the level of imported and fossil gas in Ireland.

This On-Site Generation will provide support to Eirgrid as part of their grid stabilisation program in the Kildare and wider region caused by both Supply or Demand events, this support will include both stand by availability as well as providing various Ancillary Service needs of the Grid, with the site being able to export generation to the Grid during periods of low renewable energy production.

4. Net Zero Supply

It is important that Herbata further increase the source of renewable energy and increasing the volume through CPPAs and AD supply will be a key strategy in achieving this target. Given the impending growth in Offshore wind and the growth penetration of renewable mix coming on the Grid there will be opportunities to support Grid in their management of renewable supply by increasing use during periods of high renewable productions while providing a source of supply during periods of low renewable production.

Herbata must continuously monitor and benchmark on site energy on a CO_2/KWh basis ultimately targeting Net Zero CO_2/KWh through application of portfolio of supply approach.

To achieve Net Zero target will require ensuring all Grid supplied energy, electricity and gas, is sourced from renewable sources through CPPAs while also ensuring on site generation uses renewable feedstock such as HVO, Biomethane and Hydrogen when these become available.

It will be a key objective of the strategy to continuously increasing the percentage above minimum of 30% of energy produced from renewable sources and increase the source of renewable fuels utilised on site as and when they become available and try achieve a Net Zero target. To this end Herbata initial CPPAs volume will be targeting a minimum of 30% in any month which is expected to achieve 40% across a 12month period with this target further increasing this value through use of renewable fuels on site.

APPENDIX

Table 1 – Forecasted Renewable Generation [MW]

This is the Eirgrid projection of growth from new renewable assets between now and 2031

At year end:	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Wind Onshore*	4480	4630	4790	4940	5100	5250	5400	5550	5700	5850
Wind Offshore*	25	25	25	25	25	25	725	2865	5000	7140
Small Scale Hydro	26	26	26	26	26	26	26	26	26	26
Biomass and Biogas	24	24	24	24	24	24	24	24	24	24
Biomass CHP	30	30	30	30	30	30	30	30	30	30
Industrial	9	9	9	9	9	9	9	9	9	9
Conventional CHP	129	129	129	129	129	129	129	129	129	129
Solar PV	167	333	500	667	833	1000	1167	1333	1500	1667
Total	**4890**	**5206**	**5533**	**5850**	**6176**	**6493**	**7510**	**9966**	**12418**	**14875**

Table A3-2 Partially/Non-Dispatchable plant in Ireland (MW)

Source: Eirgrid Capacity Outlook 2022-2031

Table 2– Estimate Demand & CPPA production volume profile.

This table seeks to demonstrates the production profile of Wind 35MW (winter dominant) and Solar 35MW (summer dominant) over the course of a year and when coupled together will provide a more consistent supply throughout the year. It establishes the level of Wind and Solar to be contracted to achieve 100% of renewable supply off the Grid which represents 30% minimum in a month of site needs but nearly 40% across a 12month period.

Demand	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Peak Demand per Hall (est)	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Demand (est)	315,360	26,784	24,192	26,784	25,920	26,784	25,920	26,784	26,784	25,920	26,784	25,920	26,784

Installed Capacity [MW] Production Est.	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
35.00 Wind est [MWh]	90,080	10,763	7,836	7,611	7,347	5,779	3,733	3,944	6,497	7,665	8,305	10,651	9,947
35.00 Solar est [MWh]	32,374	798	1,686	2,891	3,902	4,484	4,228	4,267	3,590	2,843	2,081	987	618
Total est [MWh]	**122,454**	**11,561**	**9,521**	**10,502**	**11,250**	**10,263**	**7,961**	**8,211**	**10,087**	**10,509**	**10,386**	**11,638**	**10,565**
% of Demand	39%	43%	39%	39%	43%	38%	31%	31%	38%	41%	39%	45%	39%

Baseload Equivalent	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wind [MW]	10.28	14.47	11.66	10.23	10.20	7.77	5.19	5.30	8.73	10.65	11.16	14.79	13.37
Solar [MW]	3.70	1.07	2.51	3.89	5.42	6.03	5.87	5.74	4.83	3.95	2.80	1.37	0.83
Total [MW]	**13.98**	**15.54**	**14.17**	**14.12**	**15.62**	**13.79**	**11.06**	**11.04**	**13.56**	**14.60**	**13.96**	**16.16**	**14.20**

Table 3– Estimate Demand & CPPA production profile – Graph.

This graph demonstrates the production profile of Wind (winter dominant) and Solar (summer dominant) over the course of a year and when coupled together will provide a more consistent supply throughout the year.

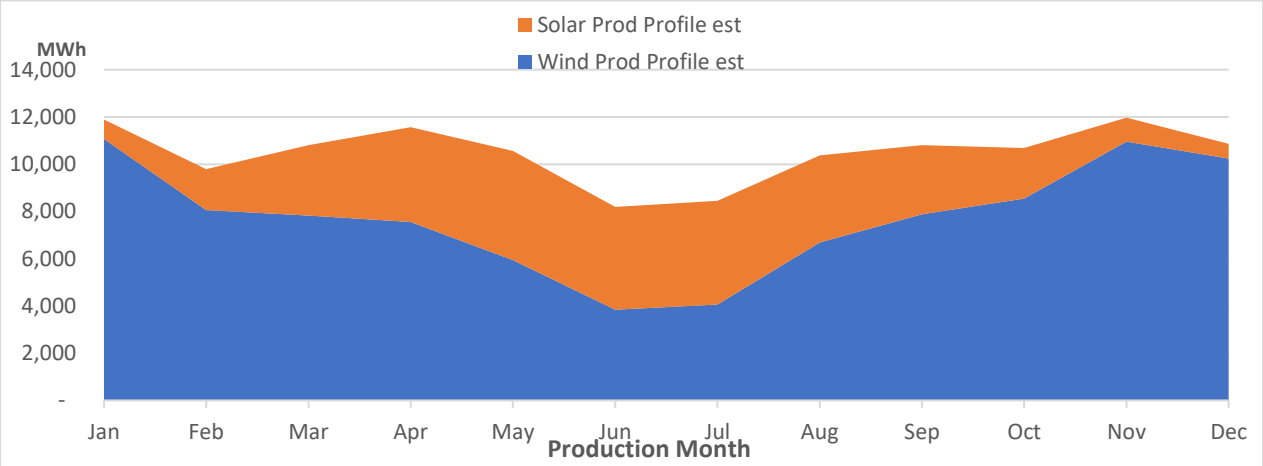

Table 4 – Forecasted Biomethane production (Green Gas)

Gas Networks Ireland estimate of growth in biomethane production and installation to 2030

Source: GNI Biomethane Sustainability Report 2021