

## APPENDIX 8C

### ENERGY

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## APPENDIX 8C

### ENERGY

#### 1. INTERPRETATION

##### 1.1 Definitions

In this Appendix, in addition to the definitions set out in Schedule 1 of this Agreement:

**“Average Unit Cost”** for an Energy Year means the average cost to Project Co or the Authority, as the case may be, of each Gigajoule of Energy purchased by Project Co or the Authority for the New KGH Facility and the New VJH Facility during that Energy Year, calculated in accordance with Section 5.1 of this Appendix;

**“Baseline Weather Data”** means data collected from the Site Weather Monitoring Stations to monitor Weather Data required for the Energy Model;

**“Building Operation Variances”** means any material variances between the actual operation of each relevant New Facility and the assumptions for operation set out in the Design and Construction Specifications, the Reviewed Drawings and Specifications and the Proposal Extracts (Design and Construction) regarding the use and operation of such New Facility;

**“Energy”** means electricity, gas, oil and coal;

**“Energy Gainshare”** means the amount calculated in accordance with Section 5.2 of this Appendix;

**“Energy Management Plan”** has the meaning set out in Section 5.6 of this Appendix;

**“Energy Model”** has the meaning set out in Section 4.1 of this Appendix;

**“Energy Painshare”** means the amount calculated in accordance with Section 5.3 of this Appendix;

**“Energy Year”** means:

- (a) the 12 month period beginning on the day after the Monitoring Period;
- (b) each subsequent period of 12 months during the Term; and
- (c) the period of less than 12 months from the end of the previous Energy Year to the Termination Date;

**“Environmental Credit”** means any income, credit, right, benefit or advantage relating to environmental matters including type and level of emissions, means of production of Energy, input sources and compliance with any environmental laws, regulations, rules or orders, provided however that in respect of Section 4.6 of Schedule 2 [Design and Construction Protocols] the credits or points required to achieve LEED Gold Certification are excluded from this definition;

**“Gigajoule”** or **“Gj”** means the international unit of energy being 1,000,000,000 Joules;

“Gj/m<sup>2</sup>” means Gigajoules per square metre;

“**KGH Agreed Proportions**” means the following relative proportions of the different types of Energy included in KGH Base Energy Consumption, as may be modified from time to time by agreement between the Authority and Project Co:

- (a) Gas 25,323 Gj (35%); and
- (b) Electricity 47,029 Gj (65%);

“**KGH Annual Base Energy Target**” for an Energy Year means the amount determined pursuant to Section 4.2 of this Appendix, as adjusted pursuant to Section 4.4 of this Appendix;

“**KGH Base Energy Consumption**” means the KGH Total Energy Consumption minus the KGH Plug-Load Consumption;

“**KGH Base Energy Consumption by Area**” for a specified period means the KGH Base Energy Consumption for that period divided by the KGH New Facility Area;

“**KGH Design and Construction Base Energy Target**” means 2.00 Gj/m<sup>2</sup>, as adjusted pursuant to Section 3.4 of this Appendix;

“**KGH New Facility Area**” means the total number of square metres of interior gross area in the New KGH Facility (with gross floor space being measured in accordance with the Standard Method for Measuring Floor Area in Office Buildings, published by the Building Owners and Managers Association International, in effect on the Effective Date);

“**KGH Plug-Load Consumption**” means the Plug-Load Consumption at the New KGH Facility;

“**KGH Total Energy Consumption**” for a specified period means the total number of Gigajoules of Energy actually consumed at the New KGH Facility during that period;

“**KGH Weather Data**” means the Weather Data recorded on the KGH Site by the Site Weather Monitoring System;

“**Monitoring Period**” means the period commencing on the day Service Commencement is achieved at whichever is relevant of the New VJH Facility and the New KGH Facility (which for these purposes will mean the date on which Service Commencement is achieved at both the New Ambulatory and Emergency Facility and the New PUBC Facility) and ending on the last day of the calendar month in which the second anniversary of such date occurs;

“**Plug-Load Consumption**” means in the case of each New Facility, all electrical power consumed by such Facility, but excluding all hardwired lighting and all electrically operated HVAC equipment, pumps, fans, chillers, fan heaters and other Plant, such consumption to be calculated from the applicable BMS and electrical metering systems;

“**Site Weather Monitoring Stations**” means the weather monitoring stations to be installed by Project Co prior to the commencement of the Monitoring Period in accordance with Section 2.2 of this Appendix;

**“Test Period”** means the 12 month period commencing on the first day of the calendar month that:

- (a) for the New KGH Facility, is at least 6 months after the date Service Commencement is achieved at the last of the New PUBC Facility and the New Ambulatory and Emergency Facility to achieve Service Commencement; and
- (b) for the New VJH Facility, is at least 6 months after Service Commencement is achieved at the New VJH Facility;

**“VJH Agreed Proportions”** means the following relative proportions of the different types of Energy to be included in KGH Base Energy Consumption, as may be modified from time to time by agreement between the Authority and Project Co:

- (a) Gas 13,696 GJ (36%); and
- (b) Electricity 24,474 GJ (64%);

**“VJH Annual Base Energy Target”** for an Energy Year means the amount determined pursuant to Section 4.3 of this Appendix, as adjusted pursuant to Section 4.5 of this Appendix;

**“VJH Base Energy Consumption”** means the VJH Total Energy Consumption minus the VJH Plug-Load Consumption;

**“VJH Base Energy Consumption by Area”** for a specified period means the VJH Base Energy Consumption for that period divided by the VJH New Facility Area;

**“VJH Design and Construction Base Energy Target”** means 2.13 GJ/m<sup>2</sup>, as adjusted pursuant to Section 3.4 of this Appendix;

**“VJH New Facility Area”** means the total number of square metres of interior gross area in the New VJH Facility (with gross floor space being measured in accordance with the Standard Method for Measuring Floor Area in Office Buildings, published by the Building Owners and Managers Association International, in effect on the Effective Date);

**“VJH Plug-Load Consumption”** means the Plug-Load Consumption at the New KGH Facility;

**“VJH Total Energy Consumption”** for a specified period means the total number of Gigajoules of Energy actually consumed at the New VJH Facility during that period;

**“VJH Weather Data”** means the Weather Data recorded on the VJH Site by the Site Weather Monitoring System; and

**“Weather Data”** means the record of daily maximum and minimum dry and wet bulb temperature, dew point humidity, relative humidity, total horizontal solar radiation, wind speed and direction, cloud amount and atmospheric pressure recorded by the Site Weather Monitoring Stations.

## **2. ENERGY SUPPLY AND CONSUMPTION**

### **2.1 Energy Supply and Payment**

The Authority will from time to time as required enter into contracts with Energy suppliers for the supply of Energy to each of the New KGH Facility and the New VJH Facility, and will be responsible for all payments related to such contracts. Project Co will provide such reasonable assistance related to such contracts as may be requested by the Authority.

### **2.2 Weather Data Monitoring and Measurement of Energy Consumption**

Prior to commencement of the Monitoring Period, Project Co will install the Site Weather Monitoring Stations on each of the KGH and VJH Sites to record and monitor Weather Data. Project Co will collect the Weather Data from each Site Weather Monitoring Station to calibrate the Energy Model to reflect actual weather conditions. In addition, Project Co will monitor consumption of each type of Energy in each of the New KGH Facility and the New VJH Facility. Such energy consumption monitoring equipment must be suitable to enable a detailed monitoring of Energy trends and consumption to allow analysis of the data collected to enable various matters, including:

- (a) comparisons to be made with the declared energy targets; and
- (b) early warning of malfunctions and deviations from norms.

Project Co will secure all such properly recorded information so that it is not lost or degraded as a result of any equipment or service malfunctions, and will secure such information from any adjustment, modification or loss from any source.

Project Co will calibrate the energy consumption monitoring equipment and Site Weather Monitoring Stations annually by an independent qualified expert who will provide verification of such calibration to Project Co and the Authority.

### **2.3 KGH Base Energy Consumption**

Promptly after the end of each month following the month in which Service Commencement is achieved for the later of the New PUBC Facility and the New Ambulatory and Emergency Facility to achieve Service Commencement, Project Co will deliver (as part of a Performance Monitoring Report) to the Authority a certificate showing:

- (a) the KGH Base Energy Consumption in Gigajoules and the KGH Base Energy Consumption by Area in GJ/m<sup>2</sup> for each type of Energy in that month;
- (b) KGH Weather Data recorded for that month;
- (c) Building Operation Variances; and
- (d) any other variable that affects the energy consumption relative to the energy model assumptions.

## **2.4 VJH Base Energy Consumption**

Promptly after the end of each month following the month in which Service Commencement is achieved at the New VJH Facility, Project Co will deliver (as part of a Performance Monitoring Report) to the Authority a certificate showing:

- (a) the VJH Base Energy Consumption in Gigajoules and the VJH Base Energy Consumption by Area in GJ/m<sup>2</sup> for each type of Energy in that month;
- (b) the VJH Weather Data recorded for that month;
- (c) Building Operation Variances; and
- (d) any other variable that affects the energy consumption relative to the energy model assumptions.

## **2.5 KGH Energy Mix**

In managing the usage of different types of Energy at the New KGH Facility, Project Co will wherever practicable seek to ensure that the relative proportions of the different types of Energy consumed in the New KGH Facility will be the KGH Agreed Proportions. Except to the extent it results from a Change or is caused by a change in the Authority's usage of a particular type of Energy, if the proportion of a type of Energy actually consumed at the New KGH Facility differs by more than 1% from the KGH Agreed Proportion for such type of Energy without the approval of the Authority (not to be unreasonably withheld or delayed), any resultant net increase in the cost of purchasing Energy will be for Project Co's account and will take effect by way of a reduction to the Service Payments.

## **2.6 VJH Energy Mix**

In managing the usage of different types of Energy at the New VJH Facility, Project Co will wherever practicable seek to ensure that the relative proportions of the different types of Energy consumed in the New VJH Facility will be the VJH Agreed Proportions. Except to the extent it results from a Change or is caused by a change in the Authority's usage of a particular type of Energy, if the proportion of a type of Energy actually consumed at the New VJH Facility differs by more than 1% from the VJH Agreed Proportion for such type of Energy without the approval of the Authority (not to be unreasonably withheld or delayed), any resultant net increase in the cost of purchasing Energy will be for Project Co's account and will take effect by way of a reduction to the Service Payments.

## **3. DESIGN AND CONSTRUCTION ENERGY GUARANTEE**

### **3.1 New KGH Facility to Meet or Beat KGH Design and Construction Base Energy Target**

Project Co warrants to the Authority that the New KGH Facility will be designed and constructed so that the KGH Base Energy Consumption by Area per year will not exceed the KGH Design and Construction Base Energy Target. The consequences to Project Co for breach of this warranty are limited to those set out in Sections 3.5 of this Appendix. For greater certainty, the KGH Base Energy Consumption will be adjusted by Section 3.4 of this Appendix.

### **3.2 New VJH Facility to Meet or Beat VJH Design and Construction Base Energy Target**

Project Co warrants to the Authority that the New VJH Facility will be designed and constructed so that the VJH Base Energy Consumption by Area per year will not exceed the VJH Design and Construction Base Energy Target. The consequences to Project Co for breach of this warranty are limited to those set out in Sections 3.5 of this Appendix. For greater certainty, the VJH Base Energy Consumption will be adjusted by Section 3.4 of this Appendix.

### **3.3 Monitoring of Energy Consumption**

During the Monitoring Period, Project Co and the Authority will, using the installed metering equipment, jointly monitor the KGH Base Energy Consumption and the VJH Base Energy Consumption in order to determine:

- (a) the average KGH Base Energy Consumption by Area for the Test Period and the Monitoring Period and to establish whether and to what extent the thermal and energy efficiency of the New KGH Facility differs from the KGH Design and Construction Base Energy Target; and
- (b) the average VJH Base Energy Consumption by Area for the Test Period and the Monitoring Period and to establish whether and to what extent the thermal and energy efficiency of the New VJH Facility differs from the VJH Design and Construction Base Energy Target.

### **3.4 Adjustment to Design and Construction Base Energy Target**

Prior to the Service Commencement of the New KGH Facility or the New VJH Facility, whichever is earlier, Project Co will engage an independent energy consultant acceptable to Project Co and the Authority, acting reasonably, to determine:

- (a) the adjusted KGH Base Energy Consumption comparable to the KGH Design and Construction Base Energy Target; and
- (b) the adjusted VJH Base Energy Consumption comparable to the VJH Design and Construction Base Energy Target,

provided that the energy consultant will document adjustments based on factors which in the energy consultant's professional opinion are applicable, including actual climate conditions, Building Operation Variances and any other variable that affects the energy consumption relative to the energy model assumptions, including equipment use and Authority controlled effects during the relevant Test Period and Monitoring Period.

### **3.5 Failure to Achieve Design and Construction Base Energy Target**

If the average annual KGH Base Energy Consumption by Area in the Test Period exceeds the KGH Design and Construction Base Energy Target or if the average annual VJH Base Energy Consumption by Area in the Test Period exceeds the VJH Design and Construction Base Energy Target, then Project Co will do one of the following:

- (a) modify whichever is relevant of the New KGH Facility or VJH Facility as required so that, as applicable:
- (1) the KGH Base Energy Consumption by Area does not exceed the KGH Design and Construction Base Energy Target, subject to compliance with the Design and Construction Specifications and the approval of such modifications by the Authority, not to be unreasonably withheld or delayed; and
  - (2) the VJH Base Energy Consumption by Area does not exceed the VJH Design and Construction Base Energy Target, subject to compliance with the Design and Construction Specifications and the approval of such modifications by the Authority, not to be unreasonably withheld or delayed; or
- (b) pay to the Authority a lump sum amount that the Authority agrees, acting reasonably, represents, in aggregate for the New KGH Facility and the New VJH Facility, the lesser of \$1,000,000 or the net present value of the cost to the Authority during the expected life of the New Facility of the amount by which the aggregate of the KGH Base Energy Consumption by Area and the VJH Base Energy Consumption by Area will exceed the aggregate of the KGH Design and Construction Base Energy Target and the VJH Design and Construction Base Energy Target, on the assumption that the excess in the Monitoring Period will continue for the balance of the expected life of the New KGH Facility and the New VJH Facility, and if this Section 3.5(b) is applied the provisions of Schedule 9 [Compensation on Termination] will be amended as necessary to ensure that the Authority will not, as a consequence of the application of this Section 3.5(b), face any additional liability upon early termination of this Agreement. For greater certainty, the \$1,000,000 lump sum referenced in this Section 3.5(b) applies to cover both the New KGH Facility and the New VJH Facility together, for an aggregate total of \$1,000,000, such that the net aggregate performance at both Facilities will be considered and better performance on one may offset worse performance at the other.

For greater certainty, the KGH Base Energy Consumption and the VJH Base Energy Consumption will be adjusted by Section 3.4 of this Appendix.

#### **4. ANNUAL ENERGY TARGETS**

##### **4.1 Energy Model**

During the Monitoring Period, for each of the New KGH Facility and the New VJH Facility, Project Co will prepare for the Authority's review and approval, not to be unreasonably withheld or delayed, a model (the "**Energy Model**") that is able from time to time to determine:

- (a) the expected annual KGH Base Energy Consumption and VJH Base Energy Consumption for the ensuing 5 year period based on actual temperatures and consumption in the Monitoring Period or the immediately preceding 5 year period, as the case may be; and

- (b) the effect on annual KGH Base Energy Consumption and VJH Base Energy Consumption in a period of actual average temperatures being higher or lower than in the previous period.

#### **4.2 KGH Annual Base Energy Target**

The KGH Annual Base Energy Target for the Energy Years after the Monitoring Period will be the lesser of:

- (a) the expected annual KGH Base Energy Consumption determined as follows:
  - (1) for the first 5 years after the Monitoring Period, the expected annual KGH Base Energy Consumption will be as determined by the Energy Model at the end of the Monitoring Period;
  - (2) at the end of each 5 Energy Year period after the Monitoring Period, Project Co will update and re-run the Energy Model using the KGH Weather Data and other applicable data from such 5 year period; and
  - (3) for each of the 5 Energy Years after the Energy Model is updated and re-run the expected annual Energy Consumption will be as determined by the updated and re-run Energy Model; and
- (b) the KGH Design and Construction Base Energy Target multiplied by the KGH New Facility Area, except that if Section 3.5(b) is applied, the KGH Annual Base Energy Target will be the amount determined under (a) above,

as adjusted pursuant to Section 4.4.

#### **4.3 VJH Annual Base Energy Target**

The VJH Annual Base Energy Target for the Energy Years after the Monitoring Period will be the lesser of:

- (a) the expected annual VJH Base Energy Consumption determined as follows:
  - (1) for the first 5 years after the Monitoring Period, the expected annual VJH Base Energy Consumption will be as determined by the Energy Model at the end of the Monitoring Period;
  - (2) at the end of each 5 Energy Year period after the Monitoring Period, Project Co will update and re-run the Energy Model using the VJH Weather Data and other applicable data from such 5 year period; and
  - (3) for each of the 5 Energy Years after the Energy Model is updated and re-run the expected annual Energy Consumption will be as determined by the updated and re-run Energy Model; and

- (b) the VJH Design and Construction Base Energy Target multiplied by the VJH New Facility Area, except that if Section 3.5(b) is applied, the VJH Annual Base Energy Target will be the amount determined under (a) above,

as adjusted pursuant to Section 4.5.

#### **4.4 Adjustment to KGH Annual Base Energy Target**

If the actual average temperature for an Energy Year as measured by the Site Weather Monitoring Station on the KGH Lands is higher or lower than the average temperature used in the Energy Model to set the KGH Annual Base Energy Target for that Energy Year, the relevant Standard Hours of Operation are exceeded or if the provisions of Section 5.6(b) of this Appendix apply, then the KGH Annual Base Energy Target for that Energy Year will be adjusted in accordance with whichever of the Energy Model or the provisions of Section 5.6(b) are appropriate.

#### **4.5 Adjustment to VJH Annual Base Energy Target**

If the actual average temperature for an Energy Year as measured by the Site Weather Monitoring Station on the VJH Lands is higher or lower than the average temperature used in the Energy Model to set the VJH Annual Base Energy Target for that Energy Year, the relevant Standard Hours of Operation are exceeded or if the provisions of Section 5.6(b) of this Appendix apply, then the VJH Annual Base Energy Target for that Energy Year will be adjusted in accordance with whichever of the Energy Model or the provisions of Section 5.6(b) are appropriate.

### **5. SHARING GAIN AND PAIN**

#### **5.1 Average Unit Cost**

The Average Unit Cost for an Energy Year will be the amount obtained by dividing:

- (a) the total, without duplication, of all amounts paid or payable by Project Co or the Authority in respect of the supply of the Energy in that Energy Year for the KGH Base Energy Consumption and the VJH Base Energy Consumption; by
- (b) the total of the KGH Base Energy Consumption and the VJH Base Energy Consumption for that Energy Year.

#### **5.2 Energy Gainshare**

The Energy Gainshare for an Energy Year will be 50% of the product of:

- (a) the amount, if any, by which the total of the KGH Base Energy Consumption and VJH Base Energy Consumption in that Energy Year is less than 97% of the total of the KGH Annual Base Energy Target and the VJH Annual Base Energy Target for that Energy Year; and
- (b) the Average Unit Cost for that Energy Year.

### **5.3 Energy Painshare**

The Energy Painshare for an Energy Year will be 50% of the product of:

- (a) the amount, if any, by which the total of the KGH Base Energy Consumption and VJH Base Energy Consumption in that Energy Year is greater than 103% of the total of the KGH Annual Base Energy Target and the VJH Annual Base Energy Target for that Energy Year; and
- (b) the Average Unit Cost for that Energy Year.

### **5.4 Calculation and Invoicing**

Project Co will submit to the Authority Project Co's calculation of the Average Unit Cost, Energy Gainshare and Energy Painshare as soon as practicable, and in any event within 20 Business Days after the end of each Energy Year. Any unresolved dispute about such calculations will be resolved in accordance with the Dispute Resolution Procedure.

### **5.5 Entitlement to Environmental Credits**

The Authority will be entitled to any and all Environmental Credits related to the New KGH Facility and New VJH Facility and its operation. If, however, there is an increase in Environmental Credits after the Monitoring Period as a result of improvements or innovations by Project Co, Project Co will be entitled to, and the Authority will transfer to Project Co, 50% of such incremental Environmental Credits.

### **5.6 Energy Management Plan**

- (a) Within 12 months of the Effective Date the parties will develop an energy management plan ("Energy Management Plan"). Project Co will prepare the first draft and provide the Authority with a copy within 9 months of the Effective Date. The Energy Management Plan will detail reasonable operating rules for all Authority and Project Co staff in the relevant New Facility and will be structured to take into account Good Industry Practice, the anticipated activities of Project Co and the Authority and use of the Facility, and will seek to minimise Energy Use while maintaining the required environmental conditions of the Room Data Sheets and of Schedules 3 and 4 of this Agreement. Failure to agree on the Energy Management Plan within 18 months of the Effective Date will be a Dispute that is resolved pursuant to the Dispute Resolution Procedure.
- (b) The parties will monitor compliance with the Energy Management Plan at each meeting of the Operating Period Joint Committee. Where parties do not comply with the Energy Management Plan, then either or both the KGH Annual Base Energy Target and the VJH Annual Base Energy Target will be adjusted by an appropriate amount to reflect the effect of non-compliance.