

## Supplementary Materials

### Toward a harmonized approach for evaluating GHG emissions in high-end hotels with implications for China

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### Appendix A: Operational Inventory and Greenhouse Gas Calculation Matrix (2023)

| Scope /<br>Inventory<br>Category | Annual<br>Activity<br>Data (A) | Unit | Emission<br>Factor<br>(EF) | Unit | Annual GHG<br>Emissions (G)<br>Formula: $A \times EF$ | Metric<br>Tons (t<br>CO <sub>2</sub> -eq)<br>Formula:<br>$G / 1000$ |
|----------------------------------|--------------------------------|------|----------------------------|------|-------------------------------------------------------|---------------------------------------------------------------------|
|----------------------------------|--------------------------------|------|----------------------------|------|-------------------------------------------------------|---------------------------------------------------------------------|

|                          |            |                |        |                                    |                 |          |
|--------------------------|------------|----------------|--------|------------------------------------|-----------------|----------|
| Scope 1:                 |            |                |        | kg                                 |                 |          |
| Heating Boiler Gas       | 1,411,842  | m <sup>3</sup> | 2.1622 | CO <sub>2</sub> -eq/m <sup>3</sup> | 3,052,684.8 kg  | 3,052.7  |
| Scope 1:                 |            |                |        | kg                                 |                 |          |
| Kitchen / Service Gas    | 155,789    | m <sup>3</sup> | 2.1622 | CO <sub>2</sub> -eq/m <sup>3</sup> | 336,847.0 kg    | 336.8    |
| Scope 2:                 | 13,791,000 | kWh            | 0.5580 | kg                                 | 7,695,378.0 kg  | 7,695.4  |
| Purchased Electricity    |            |                |        | CO <sub>2</sub> -eq/kWh            |                 |          |
| Scope 3 /                |            |                |        | kg                                 |                 |          |
| Extended: Domestic Water | 253,000    | m <sup>3</sup> | 0.301  | CO <sub>2</sub> -eq/m <sup>3</sup> | 76,153.0 kg     | 76.2     |
| Total Annual Emissions   | —          | —              | —      | —                                  | 11,161,062.7 kg | 11,161.1 |

$$\text{Final Carbon Intensity} = \frac{\text{Total Annual Emissions}}{\text{Total Documented Guest -Nights}}$$

$$\text{Final Carbon Intensity} = \frac{11,161,062.7 \text{ kg CO}_2\text{-eq}}{116,376 \text{ Guest-Nights}} = 95.9 \text{ kg CO}_2\text{-eq/guest-night}$$