Supplementary Material

# Supplementary Figures and Tables

## Supplementary Tables

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| **object** | **equipment** | **Equipment parameters** | **Equipment capacity** |
| **Distributed energy station 1** | photovoltaic | Shape factor: 0.79Scale coefficient: 1.87Rated light intensity: 700 | Total PV capacity ：4MW |
| transformer | T1: 35/11kVT2: 35/11kV | T1: 5MVAT1: 6MVA |
| GB | Energy conversion efficiency: 0.9 | 6MW |
| CP1、CP2 | Energy conversion efficiency: 0.8 | Rated power: 0.5MW |
| C1、C2 | Boost ratio: 1.2 | 6MW |
| CHP unit | CCHP，min: 0.1CCHP，max: 1.2 | Capacitance: 4MWHeat capacity: 4MW |
| **Distributed energy station 2** | Fan | Scale coefficient: 2.15 Shape factor: 15Cut in wind speed：4m/s Rated wind speed: 15m/sCut out wind speed: 25m/s | Total fan capacity : 4MW |
| transformer | T3: 35/11kVT4: 35/11kV | T3: 6MVAT4: 6MVA |
| compressor | C1 Boost ratio: 1.20C2 Boost ratio: 1.20 | 6MW |
| **Critical pipeline** | Power pipeline I | （*L*1、*L*2、*L*10、*L*7）Voltage level: 10kV | Capacity: 6.31MVA |
| Power pipeline II | （*L*3、*L*4）Voltage level: 10kV | Capacity: 7.5MVA |
| Heat supply network pipeline | Water supply temperature: 100℃Return water temperature: 49-50℃ | Capacity: 89.81m3/h |
| Natural gas pipeline | Subhigh pressure natural gas pipeline networkPressure: 0.8~1.6MPa | 0.334MMCFD2 |