**Summary of Calculation**

Table 5.0 shows the summary of calculations for Design Option 1 (4 closed feedwater heaters and 1 open feedwater heater), Design Option 2 (5 closed feedwater heaters and 1 open feedwater heater) and Design Option 3 (7 closed feedwater heaters and 1 open feedwater heater). The calculations included are the useful energy or the calculated output capacity, heat loss due to moisture in air and heat addition of the proposed steam cycle powerplant. Each value is in MW. In addition, individual efficiencies are shown in the table and the total steam turbine work of each design option.

**Table 5.0**

**Summary of Calculation for the Three Design Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **HP – System** | **Design Option 1** | **Design Option 2** | **Design Option 3** |
| Useful Energy |  |  |  |
| Heat Loss due to moisture in Air (MW) | 984.44985 | 961.35190 | 925.21519 |
| Heat Gained (MW) | 1484.44985 | 1461.35191 | 1425.21518 |
| Mass flow rate of steam (kg/s) | 664.92 | 654.58 | 646.41 |
| Steam Rate (kg/kWh) | 0.0072 | 0.0072 | 0.0072 |
| Pump Work (MW) | 14.84358 | 14.26486 | 12.36908 |
| Thermal Efficiency (%) | 33.68 | 34.21 | 35.08 |
| Steam Turbine Work (MW) | 514.083 | 513.51202 | 512.85936 |

Based on the summary of calculations, design option 3 has the highest value of thermal efficiency among the three design options. Design Option 3 has a thermal efficiency of 35.16 %. Therefore, it can be concluded that design option 3 which has 7 closed feedwater heaters and 1 open feedwater heater is the best design among the three.