have been designed for as much as 800-900 W/1000 acfm.

Increasing the power delivered into the ESP casing for this option would be done by replacing the T/R sets with higher rated power supplies, e.g. switch mode power supplies (SMPS), also referred as high frequency T/R sets, or 3-phase power supplies. Replacement of the T/R sets will require new cables, as the existing cables for 2-phase will need to be upgraded to accommodate 3phase; cables are assumed to be able to be pulled while the unit continues to operate. Further assessment would be required to determine all electrical infrastructure modifications required, including the ability to reuse the existing MCC and T/R set controls. Although PM emissions reductions are expected to be achieved with this option, a PM emission limit of 0.010 lb/MMBtu with adequate operating margin likely cannot be achieved and therefore this option was not considered further.

2.1.4.Additional ESP Field

As ESP performance does depend on the number of fields in the direction of flue gas flow, the addition of another field will increase the amount of power that can be supplied to the ESP and provide incremental removal of the filterable PM. As approximately 80% of the ash is expected to be collected in the first field, with decreasing degrees of particulate removal in the following fields, the last field in the ESP casing is expected to have the least amount of fly ash removed. This option can be implemented by either increasing the sectionalization of the last field (adding a T/R set) or potentially by utilizing the ESP outlet nozzle to retrofit another independently operated ESP field.

Sectionalization in the direction of gas flow is not feasible without a rebuild of the fields to be sectionalized as the current high voltage frames span the entire length of the field. Therefore, this option is only feasible if a new field is added at either the inlet or outlet of the existing ESP casing (assuming space available). However, the retrofit implications of this option would be considered to be a large capital retrofit project in lieu of an equipment optimization. This option is not anticipated to provide significant enough cost savings compared to the other large capital retrofit options that will be evaluated later in this evaluation. Therefore, this option is not considered further.

2.1.5.Additional ESP Casing

Installation of additional ESP casings in parallel to the existing Unit 2 ESP casings would increase the specific collecting area (SCA) and improve the velocity and treatment time of the existing ESP casings. The smaller wing ESP casings would be installed adjacent to the existing ESP casings, one added to north of Casing A and one added to the south of Casing B. The new wing casings will utilize a separate support structure and new power supplies to be independent, stand-alone structures. It is anticipated that modifications to the inlet and outlet ductwork would be required to evenly balance the flow to the new casings. The hoppers of the new ESP casings would be tied into the existing fly ash handling system. Although PM emissions reductions are expected to be achieved with this option, a PM emission limit of 0.010 lb/MMBtu with adequate operating margin likely cannot be achieved and therefore this option was not considered further.

2.1.6.ESP Rebuild

Rebuilding the existing Unit 2 ESP would involve replacement of all internals, while only reusing the outer shell/walls, hoppers, support structures, and ash conveying system. To accomplish the rebuild of the ESP