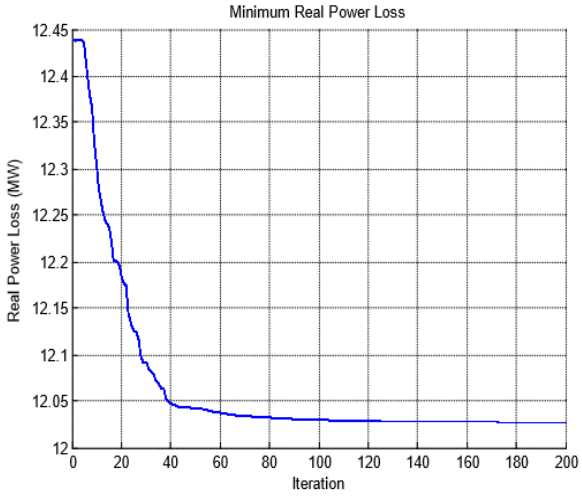

Figure 5. Loss reduction process when the new DG is installed at Bus 3

Figure 5 shows the optimal procedure of the suggested strategy, when newly wind drive is established at bus number 3.

Therefore primary active power loss of the coordination is nearly 12.45 MW. The elements flinch to meet when conduction takes eighty iterations. Lastly entire power loss of the arrangement is 12.017 MW.

6. CONCLUSION

Reactive power dispatch is a nonlinear advancement issue that contains both constant and discrete control factors. PSO is a heuristic global optimization algorithm that possess of high efficiency and robustness. PSO is less delicate to the complication of the objective functions. Therefore it shows enormous potential for solving reactive power dispatch problems. This article utilizes the IEEE 14 bus system as the test system. Both PSO technique and MATPOWER 5.1 toolbox are tested to reduce the real power loss in the power networks. Reactive power dispatch approach can significantly diminish the power loss in power systems and this method is both cost-effective and can be easily employed in real life. PSO algorithm shows excellent searching ability in solving nonlinear optimization problems. Applying PSO algorithm to address the reactive power dispatch problems is technical feasible and can achieve considerable economic benefits. The mature MATPOWER 5.1 are introduced to calculate power flow and manage the equality constraints in PSO based reactive power dispatch. The accuracy of the results and the robustness of the code get improved.

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