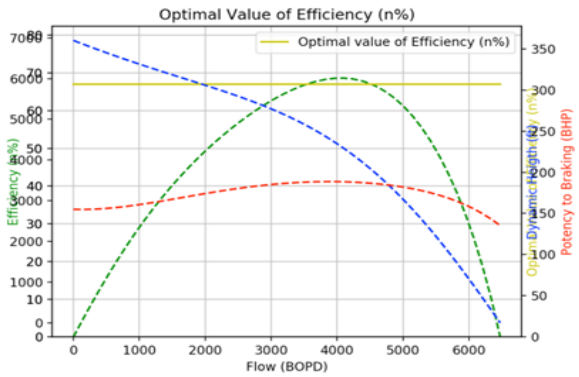

Figure 8. Modeling The Well to Study Object with Genetic Algorithm, Second Experiments

V. Conclusion

The production model obtained by using the characterization of the ESP Process using Nodal Analysis allows the prediction of the production rate that the well can produce. These models show the behavior from the "inflow" variables of the reservoir and surface pipe flow for any fluid. In our case, the Intelligent System allows obtaining similar results at reservoir and wellhead levels, in field operational.

The production of the ESP method was optimized in terms of the integrated subsoil and surface information, which will allow guaranteeing the best distribution of the energy in maximizing the production of oil. The subsoil-surface integrated approach is innovative in the sense that it integrates the reservoir/wellhead infrastructure behavior. This is done through an objective function, with the respective restrictions of the process, which allows contextualizing such objective function in the operational scenario and the reservoir conditions identified in the supervision scheme. The genetic algorithm establishes the optimum production and efficiency value for the identified operational scenario from the relationship of the two productive processes: reduce the energy and optimize the efficiency and maximize of productions.

Finally, our multiobjective optimization model system must be proved using other method of lift, compared with other intelligent techniques [9], [12], [13] and parallelized [11], in order to analyze and improve its system performance (at level of the results quality and execution time).

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