



Optimization of Energy Flow Model Function for a Case Study in Iran by Genetic Algorithms

M.K.Sinichi^a, H.Zare Aliabadi^a, J.Sargolzaei^b

^a Department of Chemical Engineering, Islamic Azad University, Shahrood Branch, Shahrood, Iran

^b Department of Chemical Engineering, Ferdowsi University of Mashhad, Mashhad, Iran
msinichy@yahoo.com

Abstract

Long-term plan to optimize the energy supply sector, has a positive effect on the economy in global energy markets. The results of the optimization of energy supply, improve production efficiency and reduce environmental pollution caused by energy production.

We do not want to explain strategies to improve the energy efficiency of operations.

But to optimize the "choice" of converting the primary energy need, and to achieve the mathematical function we have used the energy flow optimization model (EFOM), which is among the types of energy sources, energy converters and energy consumption, suggests the optimal choice. If we consider "Combined heat and power" and "environmental consideration" in it, it is called EFOM ENV / CHP.

In this paper, we tried to optimize the mathematical function of this model by genetic algorithm method.

Keywords: energy flow optimization model, EFOM, optimization, genetic algorithms

Introduction

To optimize the EFOM model, we have chosen the genetic algorithm from different optimization methods, which is a local optimization method that is based on Darwin's survival of the stronger and creation chromosomes and launch it to the range of different areas and maintain the best responses.

A case study have been schemed and then we have analyzed the EFOM model and genetic algorithm method. At last we see that the EFOM model, which is a relatively sophisticated model in the face of a genetic algorithm Method that is without limitations, requires simple premises that is consistent with the conditions of case study in Iran.

The overall question is this, we sought to analyze the model EFOM, we assume a certain amount of electrical energy is produced during 25 years in a row. We have certain options to produce energy, then we want to find the amount of use of each energy conversion technology for minimize the costs of energy production. This means that the overall function for optimization is the formula that EFOM provided for us for calculating the overall cost of these operations.