

## **Integral Indicator of Ecological Footprint for Croatian Power Plants**

Vadim Strijov <strijov@ccas.ru>  
*Computing Center of the Russian Academy of Sciences*  
Goran Granić <ggranic@eihp.hr>,  
Željko Jurić <zjuric@eihp.hr>  
Branka Jelavić <bjelavic@eihp.hr>,  
Sandra Antešević Maričić <smaricic@eihp.hr>  
*Energy Institute Hrvoje Pozar*

The main goal of this paper is to present the methodology of construction of the Integral Indicator for Croatian Power Plants. The Integral Indicator is necessary to compare Power Plants selected according to a certain criterion. Herewith the criterion of the Ecological Footprint was chosen. TPP and CHP Power Plants were selected. The following features were used: generated electricity and heat; consumed coal and liquid fuel; sulphur content in fuel; emitted CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub> and particles. To construct the Integral Indicator the linear model were used. The model was tuned by Principal Component Analysis algorithm. The constructed Integral Indicator was compared with several others, such as Pareto-Optimal Slicing Indicator and Metric Indicator. The Integral Indicator keeps as much information about features of the Power Plants as possible; it is simple and robust.



Dr. Vadim STRIJOV, research scientist of the Computing Center of the Russian Academy of Sciences. He obtained his Ph.D. in Physics and Mathematics in 2002 with a thesis on Mathematical Modelling and Data Analysis. He is the author of the Integral Indicators Construction Technique and Expert Estimations Concordance Theory. For several years he has been delivered lectures on Machine Learning and Model Selection at the Moscow Institute of Physics and Technology.