STANDPOINT

by competition for the occupation of an academic position "Associate Professor" in a professional direction 5.2. "Electrical engineering, electronics and automation", scientific specialty "Electrical wiring and electrical equipment" at the department of "Electronics, electrical engineering and mechanical science" of the University "Prof. Dr. Asen Zlatarov" - Burgas, announced in State Gazette No. 97/21.11.2023.

candidate **chief assistant professor Mladen Antonov Proikov, Ph.D**

Member of the scientific jury: **Assoc. Prof. Dr. Eng. Marin Slavov Marinov – TU-Varna**

1. General characteristics of the candidate's research and applied scientific activity

The research and scientific-applied activity of ch. assistant Professor Mladen Antonov Proikov, which is reflected in the publications and in the projects in which he participated, is aimed at increasing the energy efficiency of electrical networks and the reliability of power supply systems and is entirely within the scope of the competition.

I accept the basic directions of scientific and scientific-applied research formulated by the candidate, which are summarized as:

A. Research, analysis and improvement of the energy efficiency of electrical networks.

Research has been done on the influence of energy management systems on the achievement of energy efficiency of energy equipment. Research has been done and the negative consequences of increased reactive power consumption and reduced power factor have been assessed. The effect of installing LED luminaires and introducing a lighting control system into existing lighting arrangements has been investigated.

B. Research, analysis and evaluation of the quality indicators of electrical energy and electromagnetic compatibility in electrical networks.

The quality indicators of electrical energy have been studied and evaluated the electromagnetic compatibility of the power supply systems and energy equipment of several large industrial sites in Bulgaria. Methods for increasing the quality of electrical energy and electromagnetic compatibility are proposed.

C. Study of models of photovoltaic systems and study of their influence on electricity supply systems.

Simulation models have been made and the performance of photovoltaics has been analysed systems using Matlab / Simulink software. Methods for rationalizing the schematic characteristics of photovoltaic systems and improving their energy characteristics are proposed.

D. Investigation of the reliability of power supply systems.

The reliability of the power supply systems of large industrial sites was investigated. The influence of transient processes and resonance phenomena on the reliability of power supply systems has been studied. The relationship between electromagnetic compatibility and power supply reliability is evaluated systems. The main characteristics and reliability parameters have been analyzed and synthesized.

E. Research the operation of devices for control and protection of electrical networks and energy equipment.

A mock-up was made and the performance of an inverter for controlling an induction motor was investigated. A mock-up was made and the operation of a soft starter for soft starting of an induction motor was studied. A mock-up was made and the performance of DC and AC relays was studied.

The scientific research activity of eng. Mladen Antonov Proikov, assistant professor, Ph.D., defines him as a scientist with high theoretical and practical knowledge, necessary for successfully dealing with scientific research tasks in parallel with the teaching activity, as well as with a high potential for future successful development.

2. Evaluation of the candidate's pedagogical preparation and activity

Eng. Mladen Antonov Proikov, assistant professor, Ph.D., is an established teacher in the Department of Electronics, Electrical Engineering and Mechanical Science at the University of Prof. Dr. Asen Zlatarov" - Burgas. Conducts lectures on the disciplines: for the Bachelor's OCS - "Theoretical Electrical Engineering" Part I and II, "Elec. drive", "Power supply", "Lighting equipment" and "Electrical engineering and electrical measurements"; for OCS "Master" - "Technology of high voltages", "Relay protection and automation" and "Electric networks of populated areas". He has published 4 textbooks in co-authorship. Participated in 6 intra-university projects, contributing to the enrichment of the department's material and technical base.

I believe that his educational and teaching work meets the requirements for holding the position of associate professor.

3. Contributions in science and applied science

The scientific work of PhD Mladen Antonov Proikov, is generally in the field of power supply and electrical equipment. The proposed ideas, methods and approaches for solving the specific tasks have been solved by simulation, and some of them have been verified experimentally. In general, contributions can be categorized as follows: scientific and applied - 5 pieces; educational and methodical – 3 pcs.

For me, there is no doubt that the main scientific-applied and teaching-methodological contributions in the works presented for the competition are the personal work of the candidate and with his direct participation.

4. Significance of contributions for science and practice

The relevance of research in the field of electrical wiring and electrical equipment makes the teaching and research work, as well as the works of PhD Eng. Mladen Antonov Proikov, significant for science and education, which can be judged from his publications in scientific conferences with

international participation. He is well known to the scientific community at home and abroad and is undoubtedly a leading specialist in the field of energy efficiency of electrical networks and reliability of power supply systems.

5. Critical notes and recommendations

I have no significant comments on the materials submitted for participation in the competition. I have some recommendations and technical notes:

- In the candidate's materials, there are no submitted documents about the results of scientific research applied in practice;
- To work to modernize the material and technical base of the department, by attracting funds from donations or sponsorship;
- I would recommend that in his future work Dr. Mladen Antonov Proikov should also include work with doctoral students and young professors on research projects.

CONCLUSION

The presented scientific works, referenced in the Scopus and Web of Science databases, as well as the interests and citations of other researchers in the field of power supply and electrical equipment give me the reason to believe that Ph.D. Mladen Antonov Proikov, , has undoubtedly established himself as a leading specialist in this scientific field with a marked interest in modern achievements and potential for future development.

The minimum requirements for occupying the academic position "associate professor" in professional direction 5.2 "Electrical engineering, electronics and automation", determined by the Regulations for the terms and conditions for occupying academic positions at "Prof. Dr. Asen Zlatarov" University, which also cover the minimum national requirements according to the Regulations for the application of law on the development of academic staff in the republic Bulgaria are overfilled.

Based on the acquaintance with the presented scientific works, their importance, the scientific, scientific-applied and applied contributions contained in them, I find it reasonable to propose Eng. Mladen Antonov Proikov, assistant professor, Ph.D., to take the academic position of "associate professor" in the professional direction 5.2 "Electrical engineering, electronics and automation" at the department of "Electronics, electrical engineering and mechanical science" of the University "Prof. Dr. Asen Zlatarov" – Burgas.

Date: 04/08/2024

Prepared the opinion:

/Assoc. Dr. Eng. Marin Marinov/