INSTITUTE OF ROBOTICS – BULGARIAN ACADEMY OF SCIENCES

O P I N I O N

on the competition for the academic position of **"Professor"**
in the field of higher education **5. Technical Sciences**,
professional field **5.2 Electrical Engineering, Electronics and Automation**
(*Elements and Devices of Automation and Computing Technology*)
announced in *State Gazette* No. 61 / 29.07.2025
Candidate: *Assoc. Prof. D.Sc. Eng. Iliyan Hristov Iliev*
Member of the Scientific Jury: *Prof. Dr. Eng. Georgi Mitkov Pavlov*

1. Brief Biographical Data of the Candidate

The candidate in this competition, *Assoc. Prof. D.Sc. Eng. Iliyan Hristov Iliev*, graduated with a master's degree in Electrical Engineering and Power Engineering from the Technical University of Gabrovo in 2001. Since 2016 he has held a PhD degree in the scientific specialty *"Electric Power Supply and Electrical Equipment"* with a dissertation on *"Study, Analysis and Quantitative Assessment of the Real Contribution to the Deterioration of Electric Power Quality by Industrial Consumers and the Public Utility Sector."* In 2025 he obtained the scientific degree *Doctor of Sciences (D.Sc.)* with a dissertation entitled *"Optimization of Electrical Energy Efficiency under Low Load Conditions and Improvement of the Quality and Reliability of Power Supply Systems."*

From the accompanying documents it is evident that between 2001 and 2007 he worked at *Electricity Distribution Pleven – Vidin Branch*, holding various managerial positions (Group Leader, Dispatcher of the Regional Dispatching Station, Head of the Vidin Rural Unit). During 2007–2008 he served as Head of the Vidin Unit, Directorate "Operation and Maintenance" at *Electricity Distribution Sofia Region – Vidin*, and from 2008 to 2011 he worked at *CEZ Distribution Bulgaria JSC*, Vidin, as Head of the Regional Unit for the Vidin and Montana regions. His professional activity in 2011–2012 included work as *Transmission Engineer* in the Department "Operation and Maintenance of Transmission Network Assets" at *National Electric Company EAD*, Sofia. Between 2012 and 2015 he successively served as *Chief Expert in the "Licensing and Control" Department*, *Directorate "Regulation and Control – Electricity and Heat Power"*, and *Member of the State Energy and Water Regulatory Commission (SEWRC)*, Sofia, where some of these activities continue to the present day. From 2016 to 2017 he was *Manager of Marketing and Sales* at *Hydroenergy Group Ltd.*, Sofia. Between 2017 and 2019 he consecutively held the academic positions of *Assistant Professor* and *Chief Assistant Professor* at the *University of Mining and Geology "St. Ivan Rilski"*, Department of *Power Supply and Electrical Equipment*. In the period 2024–2025 he served as *Associate Professor* and *Head of the same Department.* Since 2025 he has been *Head of the Laboratory "Robotic Systems in Energy"* and subsequently *Head of the Section "Robotics in Energy"* at the *Institute of Robotics "St. Apostle and Evangelist Matthew", BAS, Bulgaria.* It is evident that his professional field is directly related to teaching, research, and engineering activities in *power supply and electrical equipment.* His total teaching experience exceeds **eight years.**

Assoc. Prof. D.Sc. Eng. Iliev has participated in more than **ten research and technological projects**, all of them fully related to the thematic scope of the competition for Professor. He is a member of the *Chamber of Engineers in the Investment Design*, and has been a member of both the *Scientific Council* and the *Faculty Council* of the MEMF Faculty at the

University of Mining and Geology "St. Ivan Rilski." He has excellent command of English and Russian and possesses advanced computer literacy, including the use of specialized software products and modern measuring equipment.

2. Research and Scientific-Applied Activity of the Candidate

The submitted scientific works — a total of **21** — for the competition for *Professor* can be classified as follows:

- **Habilitation work – monograph** titled *"Optimal Highly Efficient Technical Solutions in Power Supply"* (Indicator B3);
- **Scientific publications (2)** published in journals referenced and indexed in world-renowned databases (Scopus, Web of Science) (Indicator G7);
- **Scientific publications (19)** published in peer-reviewed non-indexed journals or edited collective volumes from scientific forums (Indicator G8).

The publications submitted for the competition have been published in **scientific journals, yearbooks, and proceedings** of national and international conferences. Of these, six are in **English.**

Among them, **six** are single-authored, the rest co-authored; in **nine** the candidate is first author, in **four** second author, and in the remaining — third or subsequent author. For **Indicator D12**, one citation has been found in indexed journals (Scopus); for **Indicator D13**, six citations in peer-reviewed monographs or collective volumes; and for **Indicator D14**, forty-three citations in peer-reviewed non-indexed journals. For **Indicator E16**, the candidate holds a D.Sc. degree; for **Indicator E17**, he has supervised three successfully defended PhD students (currently increased to five); and for **Indicator E23**, he has published two university textbooks, one of which co-authored.

The summarized data on the candidate's compliance with the minimum national requirements for the position of *Professor* are presented in **Table 1** below:

Group of Indicators	Minimum Required Points	Candidate's Points	Points per Specific Indicators
A	50	50	50 (Indicator 1)
B	100	100	100 (Indicator 3)
G	200	202.35	23.33 (Indicator 7) / 179.02 (Indicator 8)
D	100	114	10 (Indicator 12) / 18 (Indicator 13) / 86 (Indicator 14)
E	150	200	40 (Indicator 16) / 100 (Indicator 17) / 60 (Indicator 23)
Total	**600**	**666.35**	

It is evident that the **total of 666.35 points** accumulated by the candidate **exceeds** the required **minimum of 600 points** for this academic position. Therefore, the candidate meets the requirements of the *Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB)* and its implementing regulations.

From the above analysis, I conclude that the overall research and applied activity of *Assoc. Prof. D.Sc. Eng. Iliyan Hristov Iliev* is **current, sufficiently extensive, and of high scientific level.** His work entirely corresponds to the field of the competition and has achieved **wide dissemination at national and international level.**

3. Main Scientific and Scientific-Applied Contributions

From the attached publications, their abstracts, and the declared contributions (as per Article 27, paragraph 1 of the LDASRB), it is evident that the candidate's creative work is focused on various *energy facilities within power supply systems* — improving their *energy efficiency*, *minimizing power and energy losses*, and *enhancing operational security and reliability* in their main working regimes. The studies examine key energy parameters and propose solutions for improving **power quality** through compensation and other methods. Analytical models have been developed for studying operational modes and transient processes in various systems such as industrial enterprises, mines, and railway sections, aimed at analyzing active and reactive power distribution, power factor, harmonic distortion of current and voltage, and their effects on losses and the stability of the energy supply system.

The overall goal is to **increase energy efficiency, stability, and reliability.** Various operating regimes and transient processes are investigated to optimize parameters influencing electrical energy efficiency. Most developments demonstrate a high degree of **practical applicability.**

Appropriate **mathematical methods and modern software tools** have been created and applied to seek possibilities for improving the efficiency of operational parameters in the examined systems. The candidate's contributions are clearly **scientific, scientific-applied, and applied** in nature.

I concur with the author's summarized list of contributions presented in the submitted materials.

An overall evaluation of the publications indicates the following contribution categories:

- Formulation or substantiation of new theories or hypotheses.
- Demonstration by new means of essential new aspects of existing scientific areas, problems, or hypotheses — in most publications.
- Creation of new classifications, methods, designs, or technologies — in a significant proportion of the works.
- Establishment of confirmatory facts — in most of the presented publications.

The publications, their authorship composition, and the scientific forums in which they were presented demonstrate that these contributions are **the author's own work or achieved under his decisive participation.**

4. Evaluation of the Candidate's Teaching and Pedagogical Activity

The candidate has delivered lectures in the *bachelor's degree* programme "Electrical Power Supply and Equipment" on the following subjects: *Installation and Operation of Electrical Equipment*, *High Voltage Engineering*, *Renewable Energy Sources*, *Electrical Networks and Systems*, *Short Circuits in Electrical Systems*, and *Power Supply of Industrial Enterprises.* In the *master's degree* programme he taught: *Electricity Trading*, *Energy Efficiency*, and *Techniques and Technology for the Utilization of Solar Radiation.* He has supervised **five successfully defended PhD students** and authored **two textbooks** (one co-authored): *"Innovative Theoretical Foundations for Reactive Load Compensation"* and *"Techno-Economic Efficiency of Reactive Load Compensation under Partial Load Conditions."*

The candidate's documentation shows **active participation** in the development and updating of curricula and syllabi, as well as **active contribution** to building the department's teaching and laboratory infrastructure. He has supervised **24 successfully defended diploma theses** and served as reviewer of theses, dissertations, syllabi, research projects, and scientific papers.

I consider the teaching and pedagogical activity of *Assoc. Prof. D.Sc. Eng. Iliyan Hristov Iliev* to be **active, well-structured, and fully aligned with the scope of the competition.** In my opinion, the candidate's academic preparation and professional activity are of **very high quality**, and he is **well suited** for holding the academic position of *Professor.*

5. Significance of the Contributions for Science and Technology

I assess the significance of the candidate's contributions as **high**, since the research is focused on a **promising and forward-looking area** of technology involving measurement, analysis, and the creation of algorithms, software, and models aimed at improving the operational efficiency of various electrical power systems through optimization of their main parameters, characteristics, and processes. A large proportion of the theoretical and experimental results possess clear **practical applicability.** The candidate is a **recognized scholar both in Bulgaria and abroad.**

6. Critical Remarks and Recommendations

Regarding the candidate, I would like to make the following recommendations:

- To continue his research and development work in this promising field of technology.
- To systematize and consolidate the content of his publications in the form of a **monograph or another type of comprehensive reference material** that could serve both educational and practical purposes.

7. Conclusion

From the analysis of the submitted materials, it is evident that the overall activity of *Assoc. Prof. D.Sc. Eng. Iliyan Iliev* is of **high scientific and applied level**, fully meeting the requirements of the *Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB)* and its regulations.

My conclusion is that *Assoc. Prof. D.Sc. Eng. Iliyan Hristov Iliev* **may be appointed to the academic position of "Professor"** in the field of higher education **5. Technical Sciences**, professional field **5.2 Electrical Engineering, Electronics and Automation** (*Elements and Devices of Automation and Computing Technology*).

27 October 2025 Sofia **Member of the Scientific Jury:**

(Prof. Dr. Eng. G. Pavlov)