

### Session Conclusions:

#### Session 1 – CIREN 2008 – Conference conclusions

1. It is important to continue monitoring the behavior of the equipment during its life and its necessary introducing adequate corrections while designing and exploiting.
2. Continue innovating design of electricity distribution substations and squads.
3. Continue motivating experts and companies to give suggestions for making new and changing already existing technical recommendations for design, with a goal of considering newly created conditions for exploitation of electricity distribution substation and squad equipment. Changes of technical suggestions are needed to be performed in accordance with specific rules and procedures.
4. Grounding systems significantly affect safety conditions on electricity distribution substation and squad jobs. It is crucial to continue investigating different design and construction aspects of new grounding systems and state recording and revitalization of old ones.

#### Best paper

R-1.6

Grounding effects of mid-voltage cable squads

D. Tasić, M. Tanasković, V. Balkovoj, M. Stojanović

#### Session 2 – CIREN 2008 – Conference conclusions

1. For 10 years of existence of national CIREN committee, significant progress is noticed in development of the area of electricity quality. In first few conferences papers from the area of Electricity Quality had been focused on definitions of quality indicators and on measuring results, which in those times were in the beginning of their development. Today the papers in

this area are dealing with implementation of quality control in electro distributive industry firms and with possibilities to develop regulations that will standardize this entire area within electro distributive industry. Activities in this direction should be continued. Formation of operative teams for harmonization of standards, evaluation of coherency and bringing of regulations adequate for electro distributive enterprises in Serbia and Montenegro is proposed. Operational teams should urgently be formed from electro-distributive organizations, with participation of faculties and institutes.

2. The area of measuring and monitoring is in expansion. More papers are dealing with development of devices for determining quality and statistical analysis of measuring results. It is needed for the development of software of newly developed devices to be in accordance with standards of quality for that area

3. In area of distributive systems surge protection papers are about application of metal-oxide of surge diverters without gas-arc surges in networks and industrial machinery. Usage of Zn O arresters in polymer cabinet immune to moisture and damages possible to occur for that reason is recommendable. Such surge diverters can be posted directly on an energy transformer cabinet with which a complete surge protection can be achieved. It is recommendable that the practice of posting arresters on transformers becomes standard projecting solution.

It is important to highlight the need for technical recommendations of electro distributive firms to innovate urgently in the area of surge protection. It's important to process the surge protection of low voltage networks, in accordance with the existing European Regulative. It is also important to notice that because of the non-existence of surge protection on low voltage, the consumers may face great damages, for which now there is no proper responsible body.

4. The study of problems connected with the attachment of small electro distributors as wind generators and mini -electro distributions in distributive systems should be continued.

5. Finally, it is crucial to initiate the development of electromagnetic compatibility in the area of electro distribution, which now isn't developed enough.

For the best paper 2.8 is elected under title:

Measuring presence of third harmonica in electricity of neutral conductor in low level voltage pf

distributive network

Autors: Aleksandar. Jovanović, PD „Jugoistok“, Niš

Prof. Dobrivoje Stojanović, Elektronski fakultet, Niš

### Session 3 – CIREC 2008 – Conclusions

1. The existing problem of revitalization and maintenance of EEA resulted in the following papers:

- Revitalization of substations
- Revitalization of transformers
- Revitalization of electric and voltage transformers
- Revitalization of SN overheads

with the assistance of statistical methods, information technology tools and application of modern technical solutions in the area of electric energy.

From listed papers and the discussions the need for significant financial resources in electro distributive industry aroused as a result of dilapidation of substations, in order to increase reliability and traffic capacity.

2. As a result of great number of old and wasted transformer stations 110/35 kV and 35/10 kV it is needed to establish criteria, revitalization way and methods for choosing transformer station as a subject of revitalization.

3. The accent is given on the obligation of constant monitoring, innovation, and application of regulations and standards of electro distributive industry, as well as the application of proper regulations in the area of qualitative entry examination of equipment.

4. In order to decrease expenses because of the undelivered electric power, further investments in the automated SN and NN networks are needed.

5. The development of information systems which support entry and exchange of data as well as the projection of reports needed for averager management should be continued.

The best paper elected is:

R-3.5. Revitalization of 110 kV substations in TS 110/35 kV „N. Sad4“

Authors: D. Comic, S. Gusavac

Vrnjacka Banja, 3rd of October 2008

#### Session 4 – CIREC 2008 – Conclusions

In loop of STK 4 17 papers are presented from the total of 19 which were included in this year's Conference program.

After presenting papers following conclusion were brought on the issue of several subjects concerned on the protection in managing electro distributive networks.

1) By having a need for reconstruction of existing centers of controlling, as single systems for viewing and controlling in same very transforming stations, it is necessary to adopt unique principle in solving the problem of integrations, since central problem becomes solving of the communication within centers of controlling and transforming stations in order to increase speed of communication based on digital transmission.

2) Different approaches are presented in views of innovating centers of controlling, but also increasing the level of autoimmunization, by giving priority in implementation of new systems for supervising and controlling in terms of center controlling which gives better efficiency and integrity with other information subsystems in terms of electro distributive companies (working system, GIS, etc)

3) It is necessary to prevail further process of actualization of mid level voltage distributive network, considering that even first realized solutions of automated points on big benefits which are made in order to increase reliability of power supply for electrical energy customers. Process of automated for mid level voltage electro distributive network entangled practically all our electro distributive companies and it is real to expect that degree of automated of the network will increase in near future, as it is needed to take care to reach uniform growth of the automated degree, knowing all specific customer areas which cover our electro distributive companies.

4) In views of realization of the system protection and controlling it is necessary to continue activities in proper appliance of the standards from area of controlling and telecommunications in electrical energetic systems, in order to get standard solutions for system of protection and controlling, which will significantly relieve realization of wide plans to reconstruct existing electro energetic objects, and to relieve maintenance of realized systems.

5) Realized solutions of integrated microprocessor protection in eliminate drastically problems prevailing so far in proper functioning of protection in transforming stations, as they increase reliability of power supply for customers of electrical energy considering that they eliminate unselective activity of protection

The best paper of STK 4 "Protection and managing in distributive networks" under number R-4.18, author Saša Stojković from Technical Faculty in Čačak is:

"Influence of mini electro distributive firms on the work of existing relay protection in distributive networks"

1. Restructuring and deregulation of energy industry in Serbia is in a process and it is needed to actively monitor and analyze new regulations application, while paying attention on practical results.
2. Establishing methodology for estimating and monitoring reliability parameters and work efficiency of electro distributive companies is of great importance for proper tariffing and stimulation of these companies efficiency.
3. During introduction and selection of AMR it is needed to pay attention of current and future demands appearing in market oriented environment. Based on demands such defined it is necessary to undertake adequate techno-economical analysis.
4. Accounting system and reactive electricity price should represent real consumption of all subjects within electro-energetic system.
5. Analyzing usage and effects of tariff system for selling electricity and its improvement towards productive characteristics of electro-energetic system and consumption.
6. It is necessary to, based on analysis of consumption characteristics of a wide consumption group, justify cogency for the consumption group household and consumption group other consumption to be divided in two separated categories with different tariff system and consumption zones.
7. Systematically implement activities on the maintenance of measuring devices, determining level of accuracy, and repairing of damages when they occur, in order to secure exact measuring results and electricity accounting.

The best paper: R-5.11

Mr. Aca Vučković

Possible solutions in electricity consumption tariff system for selling electricity to a consumption group wide consumption

## Session 6 – CIREC 2008 – Conclusions

Within expert committee 6 Planning and Development of Electricity Distribution networks 21 papers were presented from which 2 were by foreign authors. All 5 preferential subjects were presented on the conference. This year again the conference has been marked with a high quality of papers and the authors had answered some present issues shown through preferential subjects. Some new discussions were opened which would be a good grounding for the following conference. The participation of new technological solutions and methods was noted.

Few better papers were 6.1.1. New possibilities of GINISED application after the integration with applications of business and technical information system – A. Krstić, M. Kostić, B. Kolić, also 6.1.5. Static characteristics of the consumption on the 35 kV level of distributive network – L. Korunović, D. Stojanović, and finally the paper on the subject Dynamical model of surge appearance when asynchrony motor with partial compensation of reactive strength is shut down – M. Radić and V. Aleksić

The best paper elected is:

6.1.5. Static characteristics of the consumption on the 35 kV level of distributive network

Authors: Lidija Korunović i Dobrivoje Stojanović