IZVEŠTAJ / REPORT

11. SAVETOVANJE O ELEKTRODISTRIBUTIVNIM MREŽAMA SRBIJE
sa regionalnim učešćem
11. CONFERENCE ON ELECTRICITY DISTRIBUTION OF SERBIA
with regional contribution

MK Restort, Kopaonik, 24-28.09.2018.

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XI SAVETOVANJE O ELEKTRODISTRIBUTIVNIM MREŽAMA SRBIJE
sa regionalnim učešćem

Srbija, Kopaonik, MK Resort
24 - 28. septembar 2018.

XI CONFERENCE ON ELECTRICITY DISTRIBUTION IN SERBIA
with regional participation

Serbia, Kopaonik, MK Resort
September 24 - 28, 2018

IZVEŠTAJ SA SAVETOVANJA
CONFERENCE REPORT

Organizator:
Nacionalni komitet CIRED Srbija u saradnji sa nacionalnim komitetima CIRED Crne Gore i CIRED Rumunije i drugim komitetima, kompanijama i stručnjacima iz ostalih zemalja regiona

Organized by:
CIRED National Committee of Serbia in cooperation with CIRED committee of Montenegro and Romania and other committees, companies and experts from the region

www.ciredserbia.org.rs

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Organizator: Nacionalni komiteti CIRED Srbije u saradnji sa nacionalnim komitetima CIRED Crne Gore i CIRED Rumunije i drugim komitetima, kompanijama i stručnjacima iz ostalih zemalja regiona

Nacionalni komitet CIRED Srbije je profesionalna i stručna organizacija, posvećena razmeni znanja i iskustva u oblasti distribucije električne energije. Okuplja istaknute stručnjake iz elektroprivrednih organizacija, elektrotehničkih fakulteta i instituta, projektnih, izvođačkih i proizvodnih organizacija sa teritorije Srbije i regiona.

www.ciredserbia.org.rs

Organized by: *CIRED Liaison Committee of Serbia in cooperation with CIRED committees of Montenegro and Romania and other committees, companies and experts from the region*

CIRED Liaison Committee of Serbia is the professional and expert organization; dedicated to the exchange of knowledge and expertise in the technical field of electricity distribution It gathers professionals and experts from power distribution companies, electrical engineering faculties, institutes and others from Serbia and the region.

www.ciredserbia.org.rs

Podrška: CIRED (Congrès International des Réseaux Electriques de Distribution) - Međunarodna konferencija za elektrodistribuciju, vodeći forum za susrete međunarodne elektrodistributivne zajednice

Svrha CIRED-a je da radi na povećanju poslovne sposobnosti, veština i znanja onih koji učestvuju u aktivnostima CIREDa. CIRED svake druge godine organizuje savetovanje i izložbu gde su postavljena najnovija dostignuća i najbolje prakse u tehnologiji i upravljanju tehničkom stranom elektrodistribucije. Između savetovanja CIRED organizuje posebne radne grupe na aktuelne teme koje su od ključnog značaja za elektrodistributivnu zajednicu.

www.cired.net

Supported by: *CIRED* (Congrès International des Réseaux Electriques de Distribution) - *International Conference on Electricity Distribution, the leading forum for international electricity distribution community meets*

CIRED works for the purposes of increasing the business relevant competencies, skills and knowledge of those participating in CIRED's activities. CIRED offers a biennial conference and exhibition where developments and best practices in technology and management of the technical side of electricity distribution are presented. Between conferences CIRED may organize specific Working Groups on current subjects of key interest to the electricity distribution community.

www.cired.net

Ciljevi savetovanja

Zemlje regiona se nalaze na sličnom tehničkom nivou razvoja i prakse distribucije električne energije i sa sličnim problemima u eksploataciji i upravljanju distributivnim mrežama. Zemlje regiona se nalaze na različitim stepenima procesa restrukturiranja, deregulacije i privatizacije elektroprivrede, ali pred istim ili sličnim izazovima otvaranja tržišta električne energije. Savetovanje treba da obezbedi razmenu znanja i iskustva o zajedničkim problemima razvoja tehnologije, reorganizacije i modernizacije distribucije električne energije u regionu.

Conference objectives

Countries in the region are at the similar technical level and practice in electricity distribution with similar problems in operation and management of distribution networks. They are at different levels of restructuring, deregulation and privatization process of electric power industries but face the same or similar challenges in opening of electricity markets. The Conference aims to enable regional exchange of experience and practice in operation, management, organization and modernization of electricity distribution.

ORGANIZACIONI ODBOR / *ORGANIZING COMMITTEE*

Dr Zoran SIMENDIĆ	Predsednik CIRED Srbija / *Chairman of CIRED LC of Serbia*
Goran RADOVANOVIĆ	JP EPS -Tehnički centar / *PE Electric Power Industry of Serbia– Technical Center*
Dr Dragoslav JOVANOVIĆ	Član CIRED Srbija / Member of CIRED LC of Serbia
Slobodan KUJOVIĆ	Član CIRED Srbija / Member of CIRED LC of Serbia
Saša STEFANOVIĆ	ODS "EPS Distribucija" d.o.o. Beograd, Kraljevo / *Belgrade El. Distribution Co. Kraljevo*
Marija ERDELJAN	Tehnički sekretar CIRED Srbija / *Technical secretary of CIRED LC of Serbia*

UVODNA REČ / *INTRODUCTORY WORD*

XI SAVETOVANJE O ELEKTRODISTRIBUTIVNIM MREŽAMA SRBIJE sa regionalnim učešćem koje se organizuje pod pokroviteljstvom CIRED - Međunarodne konferencije za elektrodistribuciju, održano je na Kopaoniku od 24. do 28. septembra 2018. godine.

Savetovanje je oborilo dosadašnje rekorde u broju učesnika i izlagača. Prema izvedenim podacima na skupu je prisustvovalo 860 registrovanih učesnika, kako autora referata i predstavnika firmi koje su učestvovale u komercijalnoj izložbi, tako i onih zainteresovanih za izlaganja autora ili posetu izložbi. Broj komercijalnih učesnika ove godine dostigao je rekord sa 74 kompanije. Takođe, sa 168 učesnika iz inostranstva, Savetovanje je još jednom potvrdilo svoj regionalni karakter.

Prvog radnog dana održana je skupština CIRED SRBIJA.

***XI CONFERENCE ON ELECTRICITY DISTRIBUTION IN SERBIA with regional participation**, supported by CIRED, the International Conference on Electricity Distribution, was held in Vrnjacka Banja from 24th – 28h September, 2018.*

According to collected data, the 11th Conference broke all records achieved in several previous conferences. There were 860 registered participants, including paper authors, representatives of the exhibiting companies, and also participants showing interest in both papers and the exhibition. A number of commercial participants reached a record number with 74 firms. With 168 foreign participants, the Conference confirmed its regional character.

The Assembly of CIRED SERBIA was held on a first day.

Predsednik Nacionalnog komiteta CIRED Srbija ***President of the CIRED Liaison Committee of Serbia***

DR ZORAN SIMENDIĆ

SVEČANO OTVARANJE / *OPENING CEREMONY*

XI savetovanje o elektrodistributivnim mrežama Srbije sa regionalnim učešćem otvoreno je na svečanoj ceremoniji u Hotelu Grand na Kopaoniku 24. septembra 2018. godine u 18:00 časova. Ceremoniji otvaranja prisustvovalo je preko 500 učesnika.

Olivera GUDŽULIĆ, načelnik Odeljenja za elektroenergetske i tehničke poslove, Sektora za elektroenergetiku Ministarstva rudarstva i energetike Republike Srbije, zvanično je otvorila XI Savetovanje.

Predsednik Nacionalnog komiteta CIRED Srbija, dr **Zoran SIMENDIĆ,** održao je kratak uvodni govor kojim je poželeo dobrodošlicu svim učesnicima, sponzorima kao i mnogim gostima iz inostranstva.

CIRED savetovanje u Srbiji pismenim putem je pozdravio i predsednik CIRED Rumunije, gospodin **Catalin STANCU**. U kratkom dopisu gospodin Stancu pozdravio je rad Nacionalnog komiteta CIRED Srbija i učesnicima skupa poželeo uspešan rad tokom Savetovanja i prijatan boravak.

Skup su pozdravili i:

Velimir STRUGAR, CIRED Crne Gore
Bojan ATLAGIĆ, V.D. direktora Društva EPS Distribucija

Edin GARAPLIJA, direktor INZA protecting people, sponzor umetničkog programa

Prema tradiciji na Svečanom otvaranju dodeljene su zahvalnice generalnom pokrovitelju savetovanja kao i zlatnim i velikim sponzorima, i velikom pokrovitelju.

The XI Conference on Electricity Distribution of Serbia with regional participation was opened at the official ceremony in the Hotel Grand at Kopaonik held on September 24, 2018 at 18h. More than 500 participants were present.

***Olivera GUDŽULIĆ**, head of department for energy and technical operations within Energy Sector in Ministry of Mining and Energ of the Republic of Serbia, has officially opened the XI Conference.*

*President of CIRED Liaison committee of Serbia, **Zoran SIMENDIĆ, PhD** gave a short introductory speech welcoming all the participants, sponsors and many guests from abroad.*

*CIRED Conference in Serbia was also greeted in a written form by Mr **Mr Catalin STANCU,** president of the CIRED Romania. In a brief letter Mr Stancu welcomed the work of the Liaison Committee of CIRED Serbia and wished to all the participants a successful work during the Conference and an enjoyable stay.*

The introductory words were also given by:

***Velimir STRUGAR**, CIRED Montenegro*

***Bojan ATLAGIĆ**, acting Director of DSO "EPS Distribution"*
***Edin GARAPLIJA**, director of INZA protecting people, sponsor of theopening ceremony musical program*

Following the tradition of the CIRED conference gratitude was given to General Sponsor as well as to Golden, Great, and to Great Donor.

Zahvalnice su primili:

Generalni pokrovitelj Savetovanja:
Bojan ATLAGIĆ, za Elektroprivredu Srbije

Priznanja za rad iz oblasti elektrodistributivne delatnosti:
dr Vladimir ŠILJKUT, autor 18 radova, 5 puta rezenzent i uz 3 rada nagrađena kao najbolji u okviru određenog stručnog komiteta
mr Slobodan MAKSIMOVIĆ, autor 15 radova, 12 puta recenzent i autor na 3 nagrađena rada
Đorđe GLIŠIĆ, autor 14 radova, 14 puta recenzent i 1 nagrađeni rad
dr Željko POPOVIĆ, autor 14 radova, 8 puta recenzent i 2 nagrađena rada
mr Miodrag STOJANOVIĆ, autor 14 radova, 3 puta recenzent i na 5 radova nagrađenih kao najbolji u okviru određenog studijskog komiteta je bio autor

Za uspešnu saradnju u organizaciji CIRED kolokvijuma:
Petko ŠIŠOVIĆ, sekretar Udruženja za energetiku i energetsko rudarstvo Privredne komore Srbije

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Aleksandar ĆOSIĆ, ABB, Beograd
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Dirk ZEIMER, OMICRON, Austrija
Jovica VRANJKOVIĆ, Schneider Electric
Jelena VELJIĆ, Siemens

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Aleksandar BOGAVAC, Minel TRAFO
Stojan JOVANOVIĆ, YOKOGAWA
Zoran RABRENOVIĆ, WEIDMUEILER

Gratitudes were given to:

General Endorser of the Conference:
***Bojan ATLAGIĆ**, for Power Industry of Serbia*

For contribution in the field of electricity distribution:
***dr Vladimir ŠILJKUT**, author of 18 papers, 5 times reviewer, 3 awarded papers*
***mr Slobodan MAKSIMOVIĆ**, author of 15 papers, times reviewer, 3 awarded papers*
***Đorđe GLIŠIĆ**, author of 14 papers, 14 times reviewer, 1 awarded paper*
***dr Zeljko POPOVIĆ**, author of 14 papers, 8 times reviewer, 2 awarded paper*
***mr Miodrag STOJANOVIĆ**, author of 14 papers, 3 times reviewer, author on 5 awarded papers*

For successful colaboration on CIRED seminars:
***Petko ŠIŠOVIĆ,** Serbian Chamber of Commerce*

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ZAKLJUČCI STRUČNIH KOMISIJA / *EXPERT COMMITTEES CONCLUSIONS*

FORUM SMART GRID
Moderator: dr Dragoslav JOVANOVIĆ
CIRED Srbija

U okviru FORUM SMART GRID prezentovano je 8 radova od ukupno 8, koji su uvršćeni u program Savetovanja.

Nakon izlaganja radova se razvila kratka ali plodna diskusija. Kod nas se čine još uvek, može se reći, početni koraci, pre svega zbog ograničene izgradnje distributivnih generatora. Izloženi su konkretni pomaci kod nas, prezentovano je stanje u Velikoj Britaniji i viđen je jedan novi pogled na probleme koji nam slede.

Zaključeno je da se kretanja u razvoju pametnih mreža ubrzavaju, istraživanja su usmerena u više pravaca ali da nekog odgovora o tome šta je izvesno na tom polju nema. Jedini zaključak koji je izvestan je da su sva kretanja usmerena profitom te da su tako i počete aktivnosti u ovoj oblasti.

Očekuje se da će se i kod nas nastaviti u pravcu izgradnje novih distributivnih izvora električne energije i da će se to propratiti na odgovarajući način.

SMART GRID FORUM
Moderator: Dr. Dragoslav JOVANOVIĆ
CIRED Serbia

For SMART GRID FORUM 8 papers were presented out of a total of 8, which were included in the Conference programme.

After the presentation of papers, a brief but fruitful discussion developed. It can be said that in our country still the initial steps are being made, primarily due to the limited construction of distribution generators. Forum presented us with a tangible progress in Serbia compared to the situation in the UK, and it was given a new insight into the upcoming problems.

It was concluded that the trends in the development of smart grids are accelerating, the research is directed in several directions, but that there is still no clear answer about what is certain in this field. The only conclusion that is known is that all the activities are driven by profit and thus so the activities in this field.

It is expected that the situation in the region will continue in the direction of constructing new energy sources and that this will be followed up suitably.

STK 1 – KOMPONENTE MREŽA

Predsednik komisije: Prof. dr DRAGAN TASIĆ
Elektronski fakultet, Niš, Srbija

U okviru STK-1, Komponente mreža, prezentovano je 27 radova od ukupno 28, koliko je uvršćeno u program Savetovanja. Radom komisije rukovodio je prof. dr Dragan Tasić uz pomoć stručnih izvestilaca Ljiljane Funduk i dr Vladimira Šiljkuta. Nakon prezentacije radova usvojeni su sledeći zaključci:

1. Potrebno je više pažnje posvetiti predlozima novih tehničkih rešenja i nove opreme, kako sa tehničke tako i sa ekonomske strane.
2. Podsticati primenu novih tehnoloških rešenja i tehnologija i analizirati iskustva tokom njihove eksploatacije.
3. Kod primene novih tehničkih rešenja moraju se sagledati efekti relokacije i zamene postojeće opreme novom, imajući u vidu mogućnost opterećivanja i životni vek opreme.
4. Analizi eksploatacionih iskustava posvetiti adekvatnu pažnju, kako sa aspekta održavanja komponenti mreža, tako i sa aspekta predviđanja budućih stanja.
5. Neophodno je raditi na razvoju postupaka monitoringa i dijagnostike kao i na strategiji održavanja komponenti mreža.
6. Potrebno je koristiti adekvatne matematičke modele i savremene softverske alate za analizu mrežnih komponenti u normalnim radnim i havarijskim stanjima, pri tome potrebno je vršiti proveru adekvatnosti predloženih matematičkih modela sprovođenjem odgovarajućih merenja.
7. Proračunu električnog i magnetnog polja, koji su posledica delovanja mrežnih komponenti, treba posvetiti više pažnje.
8. Neophodno je analizirati efekte uticaja komponenti mreža na životnu sredinu i preduzeti mere za smanjenje štetnih uticaja.

EC 1 – NETWORK ELEMENTS

Chairman: Prof. Dr. DRAGAN TASIĆ
Faculty of Electronics, Niš, Serbia

Within EC-1, Distribution substations and power lines, 27 papers were presented out of a total of 28 papers included in the Conference programme. Prof. Dr. Dragan Tasić conducted the Session work with the assistance of expert reporters Ljiljana Funduk and dr. Vladimir Šiljkut. After presenting the papers, the following conclusions were adopted:

1. The proposed new technical solutions and new equipment should be paid more attention, both from the technical, and from the economic standpoint.
2. The implementation of new technological solutions and technologies should be stimulated and operating experience analyzed.
3. When applying new technical solutions, the effects of relocation and replacement of existing equipment must be considered, bearing in mind the possibility of loading and life expectancy of equipment.
4. Adequate attention should be dedicated to the analysis of operational experience, both from the aspect of distribution substations and power lines maintenance, and from the aspect of envisaged future states.
5. It is necessary to work on the development of monitoring and diagnostics and maintenance strategy for network elements
6. It is necessary to use adequate mathematical models and state of the art software tools for analyzing the network components in normal and emergency conditions, and lso to conduct verification of the proposed models by an adequate measuring.
7. The calculation of the electric and magnetic fields, due to the operation of the network components, should be given more attention.
8. It is necessary to analyze the environmental impact of grid components and take measures on reducing the harmful effects.

Najzapaženiji rad / *the most prominent paper*:

R-1.21
ANALIZA PRENAPONA PRI OPERACIJAMA VAKUUMSKIH SKLOPNIH APARATA I MOGUĆNOSTI ZA NJIHOVO OGRANIČENJE / *OVERVOLTAGE TRANSIENT ANALYSIS DUE TO VACUUM CIRCUIT BREAKER SWITCHING AND POSSIBILITIES FOR THEIR MITIGATION*
Ranko JASIKA, Jovan MRVIĆ, Ninoslav SIMIĆ, Stefan OBRADOVIĆ, Elektrotehnički institut „Nikola Tesla" a.d., Beograd, Goran LEPOVIĆ, Siemens d.o.o. Beograd, Srbija / *Serbia*

STK 2 - KVALITET ELEKTRIČNE ENERGIJE U ELEKTRODISTRIBUTIVNIM SISTEMIMA

Predsednik: Prof. dr Vladimir KATIĆ, Fakultet tehničkih nauka Univerziteta u Novom Sadu
Zbog opravdanog odsustva predsednika sesijom je predsedavao doc.dr Velimir Strugar.

U okviru STK 2 bilo je ponudjeno 7 preferencijalnih tema:

1. *Kvalitet isporučene el. energije (kvalitet napona) – viši harmonici, fliker, propadi napona, skokovi napona, kratki prekidi i drugi poremećaji u napajanju potrošača – uzroci, prostiranje, imunitet, eliminisanje, iskustva*
2. *Uređaji i metode za merenje i monitoring kvaliteta električne energije (dijagnostičke metode, oprema, postupci i sl.)*
3. *Domaća i evropska tehnička regulativa o kvalitetu električne energije (standardizacija, tehnički propisi i postupci)*
4. *Uslovi priključenja nelinearnih potrošača i distribuiranih generatora (malih elektrana) - viši harmonici, fliker, nesimetrija, metode eliminisanja*
5. *Uticaj nedovoljnog kvaliteta na rad potrošača (tehnički problemi, energetska efikasnost, pouzdanost, finansijski efekti, odnosi sa potrošačima...)*
6. *Elektromagnetna kompatibilnost, bezbednost i interferencija*
7. *Prenaponi i zaštita od prenapona u distributivnim mrežama, poremećaji u uzemljenju i kvalitet električne energije i druge teme*

Na sesiji ove stručne komisije prezentovano je 16 od ukupno prihvaćenih 17 radova, koji su izlagani po preferencijanim temama i to 8 radova u prvoj, 2 rada u drugoj, 3 u četvrtoj i 3 u sedmoj preferencijalnoj temi. Nakon što su prezentovali svoje radove, svi autori su odgovorili na pitanja stručnih izvestilaca, predsedavajućeg i publike. Rad svih prisutnih na sesiji se može ocijeniti kao vrlo uspešan, a obeležila ga je i veoma brojna posećenost učesnika savjetovanja. Očigledno da je kvalitetan odabir preferencijanih tema, kao i materija koju su autori tretirali u svojim radovima, doprinela velikom interesovanju učesnika, krajnje konstruktivnoj i dobronamernoj diskusiji, vrlo fokusiranoj na teme radova. Opšti utisak je da su svi radovi dali bitan doprinos kvalitetu Savetovanja i boljem razumevanju savremenih problema kvaliteta električne energije u elektrodistributivnim mrežama.

Nakon sesije, održan je sastanak STK 2. Prisutni su bili:
1. Doc.dr Velimir Strugar, predsedavajući sesije
2. Doc.dr Zoltan Čorba

Na sastanku je zaključeno da se više autora u svojim diskusijama dotaklo potrebe aktivnijeg rada na regulativi i tehničkim preporukama. Kako u preferencijalnoj temi 3 nije bilo referata, a zbog aktuelnosti teme, STK predlaže intenziviranje aktivnosti u okviru ove preferencijalne teme uz dodatno animiranje svih potencijalnih autora.

EC 2 - POWER QUALITY IN POWER DISTRIBUTION SYSTEMS

Chairman: Prof. Dr. Vladimir KATIĆ, Faculty of Technical Sciences, University of Novi Sad
In the absence of the Chairman, the session was chaired by doc. dr. Velimir Strugar.

Within EC 2 preferential subjects were the following:

1. *Quality of delivered power (voltage quality) - higher harmonics, flicker, voltage sags, short breaks and other deviations in consumer supply – causes, expansion, immunity, elimination*
2. *Devices and methods for measuring and monitoring power quality (diagnostic methods, equipment, steps, etc.)*
3. *Domestic and European power quality technical regulations (standardization, technical regulations and methods)*
4. *Conditions of attaching nonlinear consumers – higher harmonics, flicker, asymmetries – sources, expansion, conditions of attachment, elimination methods*
5. *Influence of insufficient quality to consumers operating – voltage sags, short breaks and other deviations in consumer supply – causes, expansion, immunity, elimination*
6. *Electromagnetic compatibility, safety and interference*
7. *Over-voltage and over-voltage protection in power distribution networks, ground disturbances and other subjects*

At the session of this expert committee, 16 out of 17 accepted papers were presented, which were presented within given preferential topics, 8 within the first, 2 within the second, 3 within the fourth, and 3 within the seventh preferential topic. After presenting their papers, all of the authors answered the questions of the expert reporters, the chairman and the audience. The work of all present at the session can be considered as very successful, and it was marked by a very large attendance. Obviously, the quality of preferential topics, as well as the material that the authors treated in their papers, contributed to the great interest of the participants, the extremely constructive and well-intentioned discussion, very focused on the topics of papers. The general impression is that all papers contributed significantly to the quality of the Conference and a better understanding of the contemporary problems regarding energy quality in power distribution networks.

After the session, a meeting was held. The attendees were:
1. Doc.dr Velimir Strugar, Chairman of the session
2. Doc.dr Zoltan Chorba

It was concluded that many aothors have considered the need of more active work on the regulations and technical recommendations. As preferentail subeject 3 had not had papers, it is recommended to intensify all activities within this subject and to motivate poetnatial authors to write on it.

Najzapaženiji rad / the most prominent paper:

R-2.14
SMANJENJE INJEKCIJE POREMEĆAJA U DISTRIBUTIVNU MREŽU USLED RADA POSTROJENJA ZA PROIZVODNJU PELETA / *MITIGATING DISTURBANCE INJECTION INTO UTILITY GRID FROM WOOD PELLET PLANT*
Nikola LAKETIĆ, Avalon Partners, Elektrotehnički fakultet, Beograd, Borko ČUPIĆ, Visoka škola elektrotehnike i računarstva strukovnih studija, Elektrotehnički fakultet, Beograd, Srbija / *Serbia*

STK 3 - ZAŠTITA I UPRAVLJANJE ELEKTRODISTRIBUTIVNIM MREŽAMA

Predsednik komisije: mr Dušan Vukotić
ODS "EPS Distribucija" d.o.o. Beograd

U okviru STK-3 prezentovano je 18 radova i informacija od ukupno 20 referata, koji su prihvaćeni u program ovogodišnjeg Savetovanja.

Nakon prezentacije radova kroz tri tematske celine:
Tema 1 – Upravljanje elektrodistributivnim mrežama
Tema 2 – Zaštita elektrodistributivnih mreža
Tema 3 – Telekomunikacije u elektrodistributivnim mrežama
doneseni su sledeći zaključci po pitanju više tema iz oblasti zaštite i upravljanja u elektrodistributivnim mrežama:

1. Prezentovana unifikacija procesnih veličina i grafičkih prikaza po dispečerskim centrima ODS (NDDC/DDC/PDC/ODC) nedvosmisleno ukazuje na pravac u kome ide Operator distributivnog sistema (ODS), prilikom realizacije poslednjih projekata. Usvojen cilj modernizacije dispečerskih centara ima imperativ da postigne istu informatičko-telekomunikacionu platformu na nivou ODS, stvarajući sve preduslove za planiranu optimizaciju broja dispečerskih centara, a sve u cilju poboljšanja i optimizacije ukupnih performansi upravljanja distributivnim elektroenergetskim sistemom. Fokus koji je pomeren na organizaciona pitanja rada dispečerskih centra u odnosu na tehnološka rešenja, nedvosmisleno ukazuje da su se implementirana rešenja pokazala dobro u praksi, a da je to pre svega posledica dobrog strategijskog planiranja od strane ODS u poslednjih par godina.
2. Primena rešenja automatizacije srednjenaponske elektrodistributivne mreže (SNDM) su u velikoj meri omogućila pre svega efikasno upravljanje SNDM mrežom, čime je smanjena potreba za angažovanjem dispečerskih ekipa na terenu prilikom promene uklopnog stanja (rekonfiguracije) mreže, bilo za potrebe planiranih radova ili lokacije mesta kvara nakon ispada. Rešenja koja se praktično standardno primenjuju u SNDM mreži postigli su veliki stepen unifikacije i standardizacije, što je omogućilo vrlo efikasan način njihove integracije u SCADA sisteme, ali i praktično centralizovano održavanje ugrađene opreme. Prezentovani radovi su ukazivali na nove tendencije i konceptualna rešenja opreme za automatizaciju SNDM mreže, pri čemu je jedno od centralnih mesta zauzelo najnovije rešenje indikatora za indikaciju prolaska struje kvara, što je vrlo značajno budući da posle više od jedne decenije njihove primene u SNDM mreži, na novom tehnološkom talasu dolaze rešenja koja u značajnoj meri podižu nivo funkcionalnosti uređaja kroz implementaciju savremenih protokola sa unapređenim algoritmima za tačniju indentifikaciju prolaska struje kvara. I ako je to bio zaključak sa prethodnih Savetovanja, ponovo je napomenuto da se primenjena, ali i planirana rešenja automatizacije, u velikoj meri moraju da se usaglase sa preporukama i tehničkim specifikacijama opreme za automatizaciju, koje treba konačno izraditi i usvojiti na nivou ODS.

EC 3 - MANAGEMENT AND PROTECTION IN ELECTRICITY DISTRIBUTION

Chairman: Dušan Vukotić, M.Sc.
Subsidiary "EPS Distribucija" d.o.o. Beograd

In EC 3, were presented 18 papers and pieces of information out of a total of 20 expert papers, accepted for this year's Conference programme.

After the presentation of papers through 3 subject areas:
1 - Managing electricity distribution networks
2 - Protection of power distribution networks
3 - Telecommunications in power distribution networks
the following conclusions were made related to protection and management in power distribution networks:

1. *Presented unification of process sizes and graphic representations in dispatching centers of the ODS (NDDC / DDC / PDC / ODC) is unambiguously indicating the direction in which the Distribution System Operator (ODS) goes, in the implementation of the latest projects. The established goal of modernizing dispatch centers has an imperative to achieve the same information and telecommunication platform at the ODS level, creating all preconditions for the planned optimization of the number of dispatch centers in order to improve and optimize the overall performance management of the distribution system. The focus shifted to the organizational issues of the dispatching centers in relation to technological solutions, unambiguously indicates that the implemented solutions have proved good in practice, and that this is primarily due to the good strategic planning by ODS in the last couple of years.*
2. *Implementation of the automation solution for the medium voltage power distribution network (SNDM) has largely enabled the efficient SNDM network management, which reduced the need for engaging dispatching teams in the field when changing the network's reconfiguration (reconfiguration), either for the needs of the planned works or the location of the site failure after let-down. Solutions that are practically standard in the SNDM network have achieved a high degree of unification and standardization, which enabled a very efficient way of their integration into SCADA systems, but also practically centralized maintenance of embedded equipment. The presented papers pointed out new tendencies and conceptual solutions for the equipment for the automation of the SNDM network, one focus being placed on latest solutions for the indication of the failure of the fault flow, which is very important considering that more than a decade of its use in the SNDM network, on a new technological wave come the solutions that significantly increase the level of functionality of the device through the implementation of modern protocols with advanced algorithms for more precise identification of the failure of the fault flow. And if it was a conclusion from the previous Counseling, it was reiterated that the implemented, but also planned automation solutions, must largely be in line with the recommendations and technical specifications of the automation equipment that should be finalized and adopted at the ODS level.*

3. Poslednjih godina je došlo do značajnih promena u pogledu karakteristika SNDM mreže, budući da su SNDM mreže u velikoj meri postaje aktivne mreže, iz razloga sve veće prisutnosti distribuirane proizvodnje u okviru nje. Promena tokova energije u SNDM mreži prouzrokovala je potrebu za primenom zaštitnih uređaja po dubini SNDM na mestima priključenja distribuirane proizvodnje, ali i sve efikasnijom koordinacijom delovanja zaštitnih uređaja u cilju postizanja željenog nivoa selektivnosti nakon pojave ispada. Budući da je distribuirana proizvodnja u velikoj meri priključena preko priključno-razvodnih postrojenja (PRP) koja su automatizovana, ali i da su prvaci priključenja u značajnoj meri automatizovani, evidentna je potreba da se napravi jedan novi pristup u sagledavanju svih potrebnih zaštitnih šema koje treba implementirati u plan podešenja zaštite u SNDM mreži.
4. Prezentovanim referatima kojima su prikazani pravci razvoja i stepeni realizacije informaciono-telekomunikacionih sistema u okviru ODS po pojedinim distributivnim područjima, nedvosmisleno ukazuje da telekomunikacije u elektrodistributivnim sistemima sve više zauzimaju centralno mesto, budući da postoji potreba da sve više razmenjuju velike količine informacija između dispečerskih centara i ugrađene opreme po dubini SNDM mreže, ali i između samih krajnjih uređaja. Pristup u rešavanju pokrivenosti telekomunikacionim sistemom na određenom području ODS doveo je do očekivanih rezultata koji je projektovani telekomunikacioni sistem dao, čime je nedvosmisleno postavljen pravac daljeg razvoja telekomunikacionih sistema na ostalim distributivnim područjima, koja nisu ili su delimično imala potrebnu telekomunikacionu infrastrukturu. Takođe, posebno je naglašena potreba da se na nivou dispečerskih centara realizuje jedinstvena telekomunikaciona infrastruktura, pre svega bazirana na radio-sistemima, koja bi omogućila efikasnu komunikaciju sa dispečerskim ekipama na terenu.

3. In recent years there have been significant changes in terms of the characteristics of the SNDM network, since SNDM networks are largely becoming active networks, due to the increasing presence of distributed production within it. The change in the flow of energy in the SNDM network has caused the need for the use of protective devices in the depth of SNDM at the points of connection of the distributed production, but also with the increasingly efficient coordination of the operation of protective devices in order to achieve the desired level of selectivity after the occurrence of the outburst. Since the distributed production is largely connected through automated connection and distribution devices (PRPs), but also that the connection initiators are significantly automated, it is evident that there is a need to make a new approach in the consideration of all the necessary protection schemes to be implemented in the protection settings plan in the SNDM network.
4. Presented reports showing the directions of development and the degree of implementation of information and telecommunication systems within the ODS by individual distribution areas, unambiguously indicate that telecommunications in electricity distribution systems are increasingly occupying a focus, as there is a need to increasingly exchange large amounts of information between dispatching centers and embedded equipment along the depth of the SNDM network, but also between the end devices themselves. The approach in solving the coverage with the telecommunication system in a certain area of the ODS led to the expected results that the designed telecommunication system achieved, which unambiguously set the direction for further development of telecommunication systems in other distribution areas that do not or that partially have the necessary telecommunication infrastructure. Also, the emphasis were put on a need to implement a unique telecommunication infrastructure at the level of dispatch centers, primarily based on radio systems, that would enable efficient communication with dispatching teams on the ground.

Najzapaženiji rad / *the most prominent paper*:

R-3.04
ODREĐIVANJE OPTIMALNOG SCENARIJA AUTOMATIZACIJE U DISTRIBUTIVNIM MREŽAMA U PRISUSTVU NEIZVESNOSTI / *OPTIMAL AUTOMATION SCENARIO IN DISTRIBUTION NETWORKS IN THE PRESENCE OF UNCERTAINTY*
Željko POPOVIĆ, Fakultet tehničkih nauka, Novi Sad, Stanko KNEŽEVIĆ, Schneider Electric DMS NS, Novi Sad, Srbija / *Serbia*

STK 4 - DISTIBUIRANA PROIZVODNJA I EFIKASNO KORIŠĆENJE ELEKTRIČNE ENERGIJE

Predsednik komisije: dr Željko POPOVIĆ
Fakultet tehničkih nauka, Novi Sad

1. Integracija, upravljanje i uloga distribuiranih izvora električne energije u distributivnim mrežama

Stručni izvestilac - dr Predrag Vidović, Fakultet tehničkih nauka, Novi Sad, Srbija

Pored analize uticaja na gubitke i naponske prilike u distributivnoj mreži, što je razmatrano u delu prikazanih radova, potrebno je analizirati i uticaj distributivnih generatora na ostale poslovne procese u distributivnim sistemu. Pre svega je potrebno analizirati uticaj distributivnih generatora na proces dugoročnog planiranja razvoja distributivnih mreža, uvažavajući sve relevantne aspekte planiranja (investicione troškove, troškove gubitaka, troškove prekida, veličine struja kratkih spojeva, operativna ograničenja).

2. Efikasno korišćenje električne energije i upravljanje opterećenjem

Stručni izvestilac - Saša Marčeta, ODS EPS Distribucija, Novi Sad, Srbija

U cilju povećanja efikasnosti distributivnog sistema je, između ostaloga, potrebno stalno pratiti ukupne gubitke (tehničke i netehničke) električne energije na svim naponskim nivoima. Da bi se omogućilo kvalitetno praćenje stanja u ditributivnom sistemu i kvalitetna procena gubitaka energije i snage u mreži trebaju se koristiti odgovarajući alati (npr. alate koji omogućuju modelovanje mreže, analizu topologije, estimaciju stanja, proračun tokova snaga) u okviru jedinstvenog sistema za upravljanje distribucijom (DMS-a), koji predstavlja jednu od osnovnih komponenti neophodnih za realizaciju koncepta pametnih mreža (Smart Grids). Navedeni sistem treba da integriše odgovarajuće podatke o svim elementima mreže (npr. iz GIS-a) i što kvalitetnije podatke o potrošnji u potrošačkim čvorovima u mreži (npr. iz AMI/MDM i CIS sistema). Na osnovu takvog sistema se može izvršiti i makro lokalizacija povećanih netehničkih gubitaka, a na osnovu toga, primenom odgovarajućih tehničkih rešenja i mikrolokalizacija neovlašćene potrošnje.

3. Upravljanje opterećenjem i Pametna brojila i sistemi za daljinsko očitavanje i upravljanje brojilima

Stručni izvestioci - Stanko Knežević, Schneider Electric DMS NS, Novi Sad, Srbija i Boris Holik, ODS EPS Distribucija, Novi Sad, Srbija

a. Upravljanje opterećem (demand response) je jedan od važnih resursa koji se koristi u pametnim mrežama u značajnom broju poslovnih procesa (operativno upravljanje u normalnim i havarijskim uslovima, planiranje razvoja mreže). Zbog toga je potrebno, pored koristi koje upravljanje optrećenjem može doneti pojedinačnim kupcima, sagledati i proceniti i koristi koje mogu imati i ostali učesnici (proizvođači električne energije, operatori prenosnog i distributivnog sistema,

EC 4 - DISTRIBUTED PRODUCTION AND EFFICIENT USE OF ELECTRICITY

Chairman: dr Željko POPOVIĆ
Faculty of technical sciences, Novi Sad

1. Integratio, management and role of distributed power sources in distribution networks

Expert reporter – Dr. Predrag Vidović, Faculty of technical sciences, Novi Sad Serbia

In addition to analyzing the impacts on losses and voltage variations in the distribution network, which was discussed in some presented papers, it is also necessary to analyze the impact of distribution generators on other business processes in the distribution system. First of all, it is necessary to analyze the impact of distribution generators on the long-term distribution grid development planning process, taking into account all relevant aspects of planning (investment costs, costs of losses, costs of outages, short-circuits values, operative restrictions).

2. Efficient use of electricity in load control

Expert reporter - Saša Marčeta, ODS EPS Distribucija, Novi Sad, Serbia

For the purpose of obtaining higher efficiency in electricity distribution, it is necessary, among other things, to continuously monitor the total electricity losses (technical and non-technical) on all voltage levels. In order to allow quality monitioring of the ste of electricity distribution and quality assesment of energy and power in the grid, appropriate tools need to be used (e.g. tools which allow grid modelling, topology analysis, state estimation, load flows calculation) within a single distribution management system (DMS), which is one of the basic components required for implementing the Smart Grids concept. The above system needs to integrate the correponding data on all grid elements (e.g. from GIS) and the best quality data in the grid consumer nodes (e.g. from the AMI/MDM and CIS systems). On the basis of such a system, macro-localization of increased non-technical losses can be carried out, and based on that, also by applying appropriate technical solutions, microlocation of unauthorized consumption can be conducted as well.

3. Load management and Smart metres and remote measuring and control systems

Expert reporters - Stanko Knežević, Schneider Electric DMS NS, Novi Sad, Serbia and Boris Holik, ODS EPS Distribucija, Novi Sad, Serbia

a. Load management is one of the important resources used in Smart Grids in a significant number of business processes (operative management in normal and emergency conditions, grid development planning). That is why it is necessary, in addition to the benefits that load management may bring to some customers, also to perceive and assess the possible benefits for other partiicipants as well (electricity producers, transmission and distribution system operators, retaile, and wholesale tradesmen, aggregators). Only by perceiving all the benefits, and taking into account the

trgovci na malo i veliko, agregatori). Jedino na osnovu sagledavanja svih koristi, uz uvažavanje relevantnih troškova, se može oceniti efektivnost nekog programa upravljanja opterećenjem Uvođenje naprednih merenja i AMI sistema predstavlja osnovu za razvoj naprednih mreža i doprinosi razvoju otvorenog tržišta električne energije i povećanju efikasnosti rada elektrodistributivnih kompanija.

b. Ubrzati osavremenjavanje merne infrastrukture u skladu sa usvojenim konceptom AMI/MDM sistema.
c. Ubrzati aktivnosti na polju integracije podataka iz AMI/MDM sistema sa ostalim tehnološko – poslovnim procesima unutar poslovanja operatera distributivnog sistema.
d. U cilju efikasnije borbe protiv netehničkih gubitaka električne energije, intenzivirati korišćenje raspoloživih podataka iz AMI/MDM sistema (logovi, dnevnici događaja, alarmi i dr).

U cilju izbora najzapaženijeg rada, svi radovi prezentovani u okviru STK su ocenjeni na osnovu sledećih kriterijuma:

1. Definisanje problema i cilja istraživanja
2. Pregled literature
3. Dizajniranje istraživanja
4. Relevantnost istraživanja i mogućnost generalizacije i transfera rezulatat istraživanja
5. Prezentacija rezultata
6. Diskusija rezultata i zaključaka

relevant costs, can the effectiveness of a load management programme be evaluated.

b. Introducing advanced metering and the AMI system are the basis for Smart Grids development contributing to the development of the electricity market and higher operational efficiency in electricity distribution companies.
c. Updating of the metering infrastructure needs to be speeded up in compliance with the adopted AMI/MDM system concept
d. .Activities in the field of integration of data from the AMI/MDM system with other technological and business processes within the business distribution system operator need to be speeded up.
e. For the purpose of higher efficiency in struggling with the non-technical electricity losses, utilization of available data from the AMI/MDM system (logs, log books on events, alarm systems, etc.) needs to be more intensive

In order to select the most prominent paper, all presented within EC were evaluated on the basis of the following criteria:

1. Defining the problem and the purpose of the research
2. Review of literature
3. Designing a research
4. The relevance of the research and the possibility of generalization and transfer of research results
5. Presentation of results
6. Discussion of results and conclusions.

Najzapaženiji rad / *the most prominent paper is*:

R-4.01
NAČIN RADA SINHRONOG GENERATORA U MALIM HIDROELEKTRANAMA U PODPOBUĐENOM REŽIMU - PREDNOSTI I PROBLEMI / *OPERATION METHOD OF THE SYNCHRONOUS GENERATOR IN SMALL HYDROELECTRIC PLANTS IN CAPACITIVE REGIME – ADVANTAGES AND PROBLEMS*
Radovan LEKIĆ - ODS „EPS distribucuja“ DP Kraljevo, mr Vladimir OSTRAĆANIN – JP EPS, TC Kraljevo, dr Radomir TODOROVIĆ – JP EPS Beograd, Nikola M.PAVLOVIĆ – JP EPS, TC Kraljevo, Srbija / *Serbia*

STK 5 - PLANIRANJE DISTRIBUTIVNIH SISTEMA

Predsednik: Prof. dr Aleksandar Janjić
Elektronski fakultet Niš

U okviru ove stručne komisije, predstavljeno je 16 od 18 prihvaćenih radova, koji su obuhvatili svih sedam postavljenih preferencijalnih tema. Stručni izvestioci za pojedine preferencijalne teme bili su Miroslav Dočić, Mirko Luković, dr Dragoslav Jovanović, Saša Minić i dr Saša Đekić.

ZAKLJUČCI

1. Praćenje i dosledna primena zakonske regulative od ključne je važnosti u procesu planiranja nove distributivne mreže, ali je i legislativu potrebno prilagoditi realnoj praksi u Srbiji.
2. Potrebno je nastaviti sa primenom savremenih računarskih alata za planiranje distributivne mreže. Ovi alati obuhvataju geografske informacione sisteme ali i "big data" analitiku za prognozu opterećenja i proizvodnje električne energije.
3. Planiranje priključenja malih elektrana potrebno je vršiti na sistematski način, traženjem optimalnog rešenja za duži vremenski period. Takođe, potrebno je pojačati koordinaciju aktivnosti i razmenu informacija između različitih nadležnih institucija.
4. Povećanje efikasnosti i smanjivanje gubitaka u mreži potrebno je sprovoditi korišćenjem proverenih rešenja poput izmeštanja mesta merenja, ali i statističke analize koja može da ukaže na područja i uzroke povećanja gubitaka.
5. Rekonfiguraciju distributivne mreže treba vršiti uvažavanjem svih ograničenja, uz zadovoljenje više kriterijuma i ukupnih troškova u mreži.

EC 5 - DISTRIBUTION SYSTEM PLANNING

Chairman: Dr.Aleksandar Janjić
Faculty of Electronics, Niš

In this session, 16 of 18 accepted papers were presented, covering all seven given preferential subjects. The expert reporters for some preferential subjects were Miroslav Dočić, Mirko Luković, Dr. Dragoslav Jovanović, Saša Minić and Dr. Saša Đekić.

CONCLUSIONS

1. *Monitoring and consistent implementation of legislation is crucial in the process of planning a new distribution network, but the legislation needs to be adapted to the real practice in Serbia.*
2. *It is necessary to continue with the use of modern software tools for planning the distribution network. These tools include geographic information systems as well as "big data" analytics for forecasting loads and production of electricity.*
3. *Planning the connection of small power plants should be carried out systematically, by searching for the optimal solution for a longer period of time. It is also necessary to strengthen coordination of activities and information exchange between different amenable institutions.*
4. *Increasing efficiency and reducing losses in the network should be carried out using verified solutions, such as relocating the measurement location, but also the statistical analysis that can indicate the areas and causes of the increase in losses.*
1. *5. The reconfiguration of the distribution network should be carried out by respecting all constraints, with the satisfaction of several criteria and total costs in the network.*

Najzapaženiji rad / *the most prominent paper*:

R-5.16
OPTIMALNA REKONFIGURACIJA DISTRIBUTIVNE MREŽE / *OPTIMAL RECONFIGURATION OF THE DISTRIBUTION NETWORK*
Darko ŠOŠIĆ, Predrag STEFANOV, Đorđe LAZOVIĆ, Univerzitet u Beogradu – Elektrotehnički fakultet, Srbija / *Serbia*

STK 6 – DEREGULACIJA, TRŽIŠTE I EFIKASNO KORIŠĆENJE ELEKTRIČNE ENERGIJE I

Predsednik komisije: Dr Nenad Katić
Fakultet Tehničkih Nauka, Novi Sad, Srbija

Članovi komisije i stručni izvestioci:
Dr Gordan Tanić, Agencija za energetiku Republike Srbije, Beograd, Mr Vladimir Janković, EMS, Beograd, Dr Savo Djukić, Fakultet Tehničkih Nauka, Novi Sad, Srbija

Na komisiji održanoj 26. septembra 2018. godine na Koponiku na XI savetovanju o elekrtrodistributivnim mrežama prezentovano je i razmatrano šesnaest radova u skladu sa preferencijalnim temama komisije:

- Otvaranje tržišta električne energije i deregulacija elektroprivrede u regionu.
- Metodologije regulacije i iskustva u primeni.
- Mehanizmi i iskustva u radu tržišta električne energije, novi snabdevači i iskustva ugovaranja isporuke sa potrošačima.
- Smart Grid rešenja u uslovima konkurencije na otvorenom tržištu.

Nakon razmatranja radova doneti su sledeći zaključci:

1. Usled reorganizacije EPS-a neophodno je precizno definisati nove uloge ODS-a na tranzicionom tržištu električne energije.
2. U narednom periodu potrebno je jasnije definisati odnos operatora zatrovenog distributivnog sistema sa drugim učesnicima na tražištu električne energije.
3. Unapređenjem regulativnog okvira povećati efikasnost regulisane delatnosti EPS grupe.
4. Ugovorima o eksploataciji između operatora distriburivnog sistema i operatora prenosnog sistema potrebno je obuhvatiti i novonastale situacije u distributivnim mrežama koje nastaju usled sve većeg prisustva distribuiranih izvora (posebno povratak električne energije iz distribucije u prenos).

EC 6 – DEREGULATION, OPEN MARKET AND EFFICIENT USE OF ELECTRICITY

Chairman: Dr. Nenad Katić
Faculty of Technical Sciences, Novi Sad, Serbia

Session members and expert reporters:
Dr. Gordan Tanić, Energy Agency of the Republic of Serbia, Belgrade, Vladimir Janković, M.Sc.,EMS, Belgrade, Dr. Savo Djukić, Faculty of Technical Sciences, Novi Sad, Serbia

At the Session held on 29th September, 2016 in Vrnjačka Banja during the 10th Conference on electricity distribution were presented and considered six papers in accordance with the preferential subject of the Session:

- *Opening of the electricity market and deregulation of electricity sector in the region.*
- *Methodologies of regulation and experience.*
- *Principles and experience of electricity markets, new electricity providers and experience in contracting deliveries.*
- *Smart Grid solutions in competitive environment of open electricity market.*

After duscission the following conclusions were made:

1. *Due to the reorganization of EPS, it is necessary to define precisely the new roles of ODS in the transitional electricity market.*
2. *In the following period it is necessary to define more clearly the relationship of the operator of the disrupted distribution system with other participants in the electricity market.*
3. *Improving the regulatory framework to increase the efficiency of the regulated activity of the EPS group.*
4. *The exploitation agreements between the distribution system operator and the transmission system operator should also include the emerging situations in the distribution networks arising from the increasing presence of distributed sources (especially the return of electricity from the distribution to the transmission).*

Najzapaženiji rad / *the most prominent paper*:

6.08
ADMS FUNKCIONALNOSTI KROZ PROJEKAT "PAMETAN GRAD" U OGRANKU "ED NOVI SAD" / *ADMS FUNCTIONALITIES THROUGH PROJECT "SMART CITY" IN THE BRANCH "ED NOVI SAD"*
Milica POROBIĆ, Slobodan MILIVOJEV, ODS "EPS Distribucija" d.o.o, Beograd, Ogranak "ED Novi Sad", Novi Sad, Gordana JOVANOVIĆ, ODS "EPS Distribucija" d.o.o, Beograd, Novi Sad, Branislav BOGDANOVIĆ, ODS "EPS Distribucija" d.o.o, Beograd, Ogranak "ED Novi Sad", Novi Sad, Ratko ROGAN, ODS "EPS Distribucija" d.o.o, Beograd, Srbija / *Serbia*

OKRUGLI STOLOVI – PANELI / *ROUND TABLES – PANELS*

PANEL 1: ELEKTRODISTRIBUTIVNA DELATNOST (U SRBIJI) - PERSPEKTIVE I IZAZOVI U SVETLU NOVIH USLOVA I POSTOJEĆIH MOGUĆNOSTI

Moderator: Andrija Vukašinović (EPSD, Beograd)

Teme:

- Predstavljanje najavljenih tendencija u regulativi (CEER - „The Future role of DSOs“, EC - Winter Energy Package, EC - Clean Energy Package, ACER - „A bridge to 2025“, …)
- Predstavljanje novih usluga koje ODS treba da pruža ili da podrži (Demand Response, Electro mobility, Energy Storage, Flexibiility services, …)
- Upoznavanje sa softverskim/poslovnim „fenomenima“ tipa „Blockchain“ i „Smart Contract“ i mogućnostima njihove primene u poslovnim procesima ODS
- Procena mogućnosti primene navedenog na tržište električne energije u Srbiji i analiza spremnosti ODS-a da se izbori sa dolazećim izazovima
- Analiza mogućih scenarija za delovanje kako bi se uspešno uhvatili u koštac sa budućnošću koja je već stigla

PANEL 1: ELECTRIC DISTRIBUTION ACTIVITY (IN SERBIA) - PERSPECTIVES AND CHALLENGES IN THE LIGHT OF NEW CONDITIONS AND EXISTING OPPORTUNITIES

Moderator: Andrija Vukašinović (EPSD, Beograd)

Subjects:

- *Presenting announced regulations tendencies* (CEER - „The Future role of DSOs“, EC - Winter Energy Package, EC - Clean Energy Package, ACER - „A bridge to 2025“, …)
- *Presenting new services that the ODS should provide or support*(Demand Response, Electro mobility, Energy Storage, Flexibiility services, …)
- *Getting familiar with new software / business fenomenons such are Blockchain or Smart contract and implementation possibilities for ODS business processes*
- *An estimate of implementing given options in Serbian power market and analysis of the ability of ODS to adjust to the upcoming challenges*
- *Analysis of possible scenarios for acting in order to succesfully cope with the future already here*

PANEL 2: MODEL JAVNO-PRIVATNOG PARTNERSTVA U JAČANJU KAPACITETA ZAŠTITE I SPAŠAVANJA NA KRITIČNOJ INFRASTRUKTURI U ELEKTROENERGETSKOM SEKTORU U REGIONU

Moderatori:Edin GARAPLIJA, Institut za upravljanje rizicima INZA Beograd, Velimir STRUGAR, Elektroprivreda Crne Gore AD Nikšić, Crna Gora

1. Klimatske promjene i globalne prijetnje od terorizma, predstavljaju najveće rizike po kritičnu infrastrukturu, a posebno po elektrodistributivnu mrežu, kao jednog od stubova razvoja i normalnog funkcionisanja lokalne zajednice. Tehnološki napredak i porast zavisnosti stanovništva o neprekidnom napajanju električnom energijom, obavezuju struku da izradi modele uspješnog i funkcionalnog odgovora izazovima u oblasti upravljanja rizicima.
2. S tim u vezi Evropska Unija je dala preporuke za uspostavljanje sistema integrisanog upravljaja rizicima uključujući komponente identifikacije, analize i vrednovanja dobijenih rezultata. Primjena inovacionih tehnologija nam omogućava relevantan izvor prikupljanja kompetetnih podataka koji su iskoristivi u kasnijoj fazi analize i vrednovanja rezultata. Pravilna klasifikacija podataka i kategorizacija rizika nam daju pretpostavke za određivanje prioriteta djelovanja i primjene adekvatnih mjera u integrisanom sistemu zaštite i spašavanja.
3. Mapiranje rizika korišćenjem savremenih informatičkih alata i standardizovanih metoda za procjenu rizika, kao I standardizovanje ovakvog pristupa u oblasti elektrodistributivne djelatnosti je od posebnog značaja za adekvatnu pripremu odgovora i prevenciju težih posljedica koje vanredne situacije nose sa sobom.
4. Upravljanje rizicima ne predstavlja više samo pojam prestižnosti i modernizacije procesa, već i sve prisutniju potrebu, kreiranu prema zahtjevu velikih sistema u kritičnoj infrastrukturi. Generalni zaključak možemo sublimirati predstavkom modela javno-privatnog partnerstva kao rješenja i adekvatnog odgovora sve prisutnijim izazovima i rizicima nastalim klimatskih promjena, globalizacijom i sve izrazitijim prijetnjama od terorističkih napada na sisteme kritične infrastrukture.
5. Izgradnja integrisanog sistema zaštite i spašavanja mora se posmatrati kao investiranje u sistem preventivnog upravljanja rizicima u cilju smanjenja istih i jačanja kapaciteta pripravnosti i odgovora na sve izazove. Pravilnim investiranjem u prevenciju smanjujemo direktne i indirektne štete prema algoritmu 1:7:40 sa čime stvaramo preduslove za neometano funkcionisanje sistema kritične infrastrukture, a posebno kontinuiranog snabdijevanja stanovništva električnom energijom kao jednim od najpotrebnijih resursa čovječanstva.

PANEL 2: MODULE OF PUBLIC-PRIVATE PARTNERSHIPS IN STRENGTHENING THE CAPACITY OF PROTECTION AND RESCUE IN CRITICAL INFRASTRUCTURE IN THE ELECTRIC POWER SECTOR IN THE REGION

Moderators:Edin GARAPLIJA, Institut za upravljanje rizicima INZA Beograd, Velimir STRUGAR, Elektroprivreda Crne Gore AD Nikšić, Montenegro

1. *Climate changes and global threats from terrorism pose the greatest risks to critical infrastructure, and especially to the electricity distribution network, as it is one of the pillars of development and normal functioning of the local community. Technological progress and the increase in the dependence of the population on continuous power supply, oblige the profession to develop models of successful and functional response to challenges in the area of risk management.*
2. *In this regard, the European Union has made recommendations for the establishment of an integrated risk management system, including components for identifying, analyzing and evaluating the results obtained. The application of innovative technologies provide us with relevant source for collecting competent data that is usable at a later stage in the analysis and evaluation of results. Proper classification of data and categorization of risks give us the prerequisites for determining priorities of action and application of adequate measures in the integrated protection and rescue system.*
3. *Mapping risks using modern IT tools and standardized methods for risk assessment, as well as standardizing such an approach in the area of electricity distribution is of particular importance for an adequate preparation of responses and the prevention of serious consequences that emergency situations carry with them.*
4. *Risk management is not just a concept of prestige and modernization of the process, but also an ever-increasing need, created according to the requirement of large systems in critical infrastructure. The general conclusion can be sublimated by the application of the public-private partnership model as a solution and an adequate response to the ever-present challenges and risks of the resulting climate change, globalization and increasing threats from terrorist attacks on critical infrastructure systems.*
5. *The construction of an integrated protection and rescue system must be considered as investing in the risk management system in order to reduce them and to increase the capacity of the readiness and response to all challenges. By properly investing in prevention, we reduce direct and indirect damages according to algorithm 1: 7: 40, which creates preconditions for the smooth functioning of the critical infrastructure system, and in particular the continuous supply of the population with electricity as one of the most needed resources of humanity.*

PANEL 3: ENERGIJA I DISTRIBUCIJA - OČEKIVANI KORACI U RAZVOJU I UPRAVLJANJE DISTRIBUTIVNOM MREŽOM - IEEE POWER AND ENERGY SOCIETY

Moderator: dr Žarko Janda, IEEE PES Chapter, sektor za Srbiju i Crnu Goru

Teme koje su bile obrađene u okviru radionice su:

Prof. Dr Željko Đurišić, ETF Beograd
Mogući pravci unapređenja fleksibilnosti distributivnih sistema sa integrisanim obnovljivim izvorima energije

Dr Željko Popović, FTN Novi Sad
Pravci razvoja sistema za upravljanje distribucijom

Prof. Dr Lidija Korunović, Elektronski fakultet, Niš
Dostignuća u modelovanju opterećenja za upravljanje distributivnim sistemom

PANEL 3: ENERGY AND DISTRIBUTION - EXPECTED STEPS IN DEVELOPMENT AND DISTRIBUTION NETWORK MANAGEMENT - IEEE POWER AND ENERGY SOCIETY

Moderator: dr Žarko Janda, IEEE PES Chapter, Serbia & Montenegro Section

Subjects discussed during the panel were:

Prof. Dr Željko Đurišić, ETF Beograd
The possible ways of improvement of power distribution systems with integrated renewable power sources

Dr Željko Popović, FTN Novi Sad
Distribution Management Systems – DMS

Prof. Dr Lidija Korunović, Elektronski fakultet, Niš
State-of-the-art achievements in load modelling for distribution management system

PANEL 4: AKTIVNOSTI NA IZVOĐENJU RADOVA NA DISTRIBUTIVNOM ELEKTROENERGETSKOM SISTEMU (DEES)

Moderator: mr Dušan Vukotić
ODS "EPS Distribucija" d.o.o. Beograd, Srbija

Na okruglom stolu ukazana je neophodnost izrade IMS dokumenata iz funkcije „Upravljanja DEES", nakon statusne promene kompanije, kojom su IMS dokumenta koja su postojala po preduzećima za distribuciju električne energije po pojedinim distributivnim područjima, praktično prestala da postoje. Novom organizacionom strukturom nametnuta je potreba da se svi IMS dokumenti iz funkcije „Upravljanja DEES" izrade na jedinstven način, kao i da se u okviru njih definišu jedinstveni postupci i procedure. Potreba da se na jedinstven način uspostavi jednoznačno postupanje prilikom izvršavanja aktivnosti iz funkcije „Upravljanja DEES" nametnula je da se na jedinstven način definišu svi dokumenti koje dispečerski centri koriste prilikom obezbeđivanja mesta rada prilikom izvođenja radova na distributivnom elektroenergetskom sistemu (DEES), poštujući sve zakonske norme iz oblasti bezbednosti i zdravlja na radu.

Budući da se sa predmetnim IMS dokumentima, u prelaznom periodu njihove primene, upoznao veliki broj zaposlenih u okviru JP EPS i ODS „EPS Distribucija", kroz organizovane obuke i radionice, iskorišćena je mogućnost da se na organizovanom okruglom stolu upoznaju i ostala radno angažovana lica izvođača radova, koja učestvuju u realizaciji poslova obuhvaćenih predmetnim procedurama i uputstvima.

Kroz izlaganje više puta je ukazivano na sistematizovan pristup koji se imao prilikom izrade IMS dokumenta. Ovaj pristup je pokušao da pomiri novouspostavljenu organizacionu strukturu na celokupnom konzumnom području ODS-a sa dosadašnjom dobrom praksom po organizacionim celinama koje vrše upravljanje elektrodistributivnim sistemom na svim naponskim nivoima, a koja je pretočena na IMS dokumenta koja su bila u primeni po pojedinim distributivnim područjima. Poseban akcenat je dat na izradi dokumenata pri čemu su poštovane sve zakonske norme koje su date kroz „Zakon o energetici", ali i kroz „Pravila o radu prenosnog sistema" i Pravila o radu distributivnog sistema". Tokom uvodnih izlaganja posebna pažnja je posvećena prijavi radova na elementima i objektima DEES, kako bi se efikasno planirali radovi koji se obavljaju na distributivnom elektroenergetskom sistemu, uz obezbeđivanje minimalnih resursa za njihovo izvršavanja u postavljenim vremenskim rokovima.

Na okruglom stolu napomenuto je da usvojenim IMS procedurama i uputstvima od strane ODS-a, bezbednosni postupci koji se preduzimaju pre i tokom izvođenja rada, uključuju mere kojima se smanjuju ili uklanjaju opasnosti koje proizlaze iz izvršenja posla na DEES. Istovremeno, izvršioca i izvođačima koji su angažovani po više osnova, obavezuju da efikasno eliminišu eventualnu pojavu akcidenata tokom izvođenja radova.

PANEL 4: ACTIVITIES ON DISTRIBUTION ELECTRIC POWER SYSTEM (DEES)

Moderator: mr Dušan Vukotić
ODS "EPS Distribucija" d.o.o. Beograd, Serbia

The round table indicated the necessity of making IMS documents from the function of "DEES Management" after the status change of the company, by which the IMS documents that existed at the companies for distribution of electricity in certain distribution areas practically ceased to exist. The new organizational structure has imposed the need to make all IMS documents from the "DEES Management" function in a unique way, as well as to define unique steps and procedures within them. The need to establish a unique and unified approach in the execution of activities from the function of the "Management of DEES" has imposed to define all the documents used by the dispatching centers in securing the place of work in the performance of works on the electricity distribution system (DEES), respecting all legal standards in the field of safety and health at work.

During the transitional period of their implementation, a large number of employees in the EPS and ODS "EPS Distribution" were introduced with the above mentioned IMS documents, through organized trainings and workshops. The panel provided an opportunity for other relevant contractors to be acquanted with the matter as well, who participate in the realization of tasks covered by the relevant procedures and instructions.

Through the panel it was pointed out several times the systematized approach that was made during the development of the IMS document. This approach has attempted to reconcile the newly established organizational structure in the entire ODS consumable area with previous good practices by organizational units that manage the electricity distribution system at all voltage levels, which is transmitted to the IMS documents that were applied in certain distribution areas. A special accent was given on the preparation of documents, whereby all the legal norms given through the "Energy Law", as well as through the "Rules on the operation of the transmission system" and the Rules on the operation of the distribution system, were followed. During the introductory presentations, special attention was paid to the registration of works on the DEES elements and facilities in order to effectively plan the works that are performed on the distribution system, while providing minimum resources for their implementation within the set timeframes.

The round table noted that with adopted IMS procedures and instructions by the ODS the security procedures that take place before and during the performance of the work, include measures that reduce or eliminate the risks arising from the execution of the work to DEES. At the same time, the documents oblige executors and contractors engaged on a number of grounds to effectively eliminate the eventual occurrence of accidents during the execution of works.

Imajući u vidu diskusiju koja je vođena na samom okruglom stolu, očito je da je tema izvođenja radova na DEES izazvala veliku pažnju, ali i ukazala na to da slične teme koje se odnose na podizanje nivoa kompetencije i organizacije izvođenja radova na DEES, uz poštovanje svih bezbednosnih aspekata, treba obrađivati u nešto širem obimu na sledećem Savetovanju.

Bearing in mind the discussion held at the round table itself, it is obvious that the theme of the work on the DEES has generated great attention, but also pointed out that similar topics related to raising the level of competence and organization of the work on the DEES, with respect to all security aspects, should be dealt with in a somewhat broader scope at the next Conference.

POSLOVNE PREZENTACIJE / BUSINESS PRESENTATIONS

Utorak / *Tuesday*, 25.09.2018.

Sala Josip Pančić 1 / Hall 1	15:00-15:45	Elektromontaža: Prezentacija kompanije / *Company presentation*
Sala Kopaonik 3 / Hall 3	15:00-15:45	ABB: Prezentacija kompanije / *Company presentation*
Sala Josip Pančić 1 / Hall 1	16:00-16:45	Schneider Electric: Prezentacija kompanije / *Company presentation*
Sala Kopaonik 3 / Hall 3	16:00-16:45	Jugotrade: Prezentacija kompanije / *Company presentation*
Sala Kopaonik 3 / Hall 3	17:00-17:45	Elnos Group: Prezentacija kompanije / *Company presentation*
Sala Josip Pančić 1 / Hall 1	18:00-18:45	Nexans / Marti Komerc: Prezentacija kompanije / *Company presentation*
Sala Kopaonik 3 / Hall 3	18:00-18:45	General Electric: Prezentacija kompanije / *Company presentation*
Sala Josip Pančić 1 / Hall 1	19:00-19:45	Siemens: Prezentacija kompanije / *Company presentation*

Sreda / *Wednesday*, 26.09.2018.

Sala Josip Pančić 1 / Hall 1	15:00-15:45	MLS Exing / Kohler-Sdmo: Prikaz dizel agregata / *Diesel aggregates demonstration*
Sala Kopaonik 3 / Hall 3	15:00-15:45	Omicron: Prezentacija kompanije / *Company presentation*
Sala Kopaonik 3 / Hall 3	16:00-16:45	Minel Trafo: Prezentacija kompanije / *Company presentation*
Sala Kopaonik 3 / Hall 3	17:00-17:45	Yokogawa: Prezentacija kompanije / *Company presentation*

Četvrtak / *Thursday*, 27.09.2018.

Sala Kopaonik 3 / Hall 3	16:00-16:45	EGE / Aries: Prezentacija kompanije / *Company presentation*

Sve planirane prezentacije su održane i bile su dosta dobro posećene. Učesnici konferencije imali su prilike da čuju o poslovnim aktivnostima kompanija u prethodnom periodu i proizvodima i uslugama koje nude.
All business presentations were held and well atended. Participants had the oportunity to get informatio regarding new business solutions of the companies presenting.

IZLOŽBA OPREME I USLUGA / *EXHIBITION OF EGUIPMENT AND SERVICES*

Tokom Savetovanja, organizovana je i izložba opreme, usluga i novih tehnologija iz oblasti elektrodistribucije na kojoj su učestvovale mnoge strane i domaće kompanije.

During the Conference, an exhibition of equipment, services and new technologies from the field of electricity distribution was organized, in which many foreign and local company took part.

ABB
Aries / EGE
Avalon partners
Comel
Dalkom
Eco clean distributions
El-co
Elektro merkur
Elektroinštitut Milan Vidmar Slovenija
Elektrometal Plus
Elektromontaža Kraljevo
Elektrotehnički Institut "DEC"
Elingzo
Elnos Group Banja Luka
Elsta Mosdorfer Bosnia
Eltec export-import
Enel PS
Eti B
Exor ETI
Fabrika mernih transformatora
Feman Jagodina
Feromax
Gat Novi Sad
Geachem
General Electric
Global Substation Solutions
GPS Insulators
IED
Jugotrade
Konvereks
Konvex electric
Marti komerc
Melco buda
Mezon / Rasina
Minel dinamo
Minel Energy
Minel trafo
Mitsubishi Electric Europe B.V.
MLS Exing/KOHLER-SDMO
Nidas
NT Soft
Omicron
Pfiffner
Roxtec Zagreb
Saturn Electric
Schneider Electric DMS NS
Schneider Electric Srbija
Schrack technik Beograd
Siemens Beograd
Sigmateh
Sitel
SNE Energy
Socomec Sicon
Somborelektro
SRC soft
Tectra
Telegroup
Triton Oil / Orbico
Vesimpex / Rittal
Weidmuller
Yokogawa Europe Branches Beograd
Zpue s.a. Poljska

DRUŠTVENI PROGRAM / SOCIAL PROGRAM

Svečano otvaranje / *Openning Ceremony*

Umetnički program Svečanog otvaranja XI Savetovanja podržala je kompanija INZA protecting paople a sastojao se od nekoliko muzičkih numera iz poznatih mjuzikla u izvedbi uglednih umetnika:

Maja Vukojević Cvetković, sa ulogom u mnogim predstavama Narodnog pozorišta u Nišu, različitih žanrova, među kojima su i mujzikli ,,Violinista na krovu" i ,,Cigani lete u nebo" 2011. godine nagarađena je za najbolju žensku ulogu u predstavi ,,Niš express", za ulogu Hasanaginice nagradom ,,Joakim Vujić" na istoimenom festivalu.

Miloš Unić dobitnik je 15 priznanja među kojima je i ,,Car Konstantin". Jedini je dvostruki pobednik pevačkog takmičenja ,,Frankofona pesma". Nastupao je na Nišville festivalu i na mnogim važnim manifestacijama od kojih je značajnija otvaranje međunarodnog pozorišnog festivala ,,Kestenburg".

Uroš Milojević, ostvario se na televiziji kako i u pozorištu. Glumio je u seriiji ,,Ulica Lipa 2" i filmovima ,,Nesporazum" i ,,Unutra", Pozorišnu kareijeru ostvaruje kroz dela ,,Crvena-samoubistvo nacije" u Bitef teatru i ,,Nasilje nema opravdanja" Zijaha Sokolovića kao i mjuziklima ,,Cigani lete u nebo" u Narodnom pozorištu u Nišu i ,,Valjevska bolnica" u Kruševačkom pozorištu.

Koktel dobrodošlice standardno je održan nakon ceremonije otvaranja i kao i do sada bio je prilika za susrete starih prijatelja i kolega i prilika za nove učesnike savetovanja CIRED Srbija da se predstave i upoznaju.

The opening ceremony of the XI Conference was accompanied with the art program supported by INZA protecting people and consisting of several songs from famous musiclals performed by reputable artists:

Maja Vukojević Cvetković, with a role in many plays of the National Theater in Niš of various genres, among which are the musicals "Violinists on the roof" and "Gypsies fly to the sky", in 2011 was awarded the best female role in the play "Niš ex press" for the role of Hasanaginica with the award "Joakim Vujic" at the festival of the same name.

Miloš Unić is the winner of 15 awards, one of which is "Car Constantine". He is the only double winner of the Singing Competition "Francofon Song". He performed at Nišville and on many important events, with special significance given to the opening of the international theater festival "Kestenburg".

Uroš Milojević, etsblished on television and in theater.He had played in the series "Lipa Street 2", and films "Misunderstanding" and "Inside". In thetaer he has roles in "Red-suicide of the nation" in Bitef theater and a play "Violence is not justified" by Zijah Sokolović but also in musicals "Gypsies fly to the sky" at the National Theater in Nis and "Valjevska Hospital" in the Kruševac Theater.

A welcome coctail standardly followed the opening ceremony and as always represented the opportunity for encounters of old colleagues and an opportunity for new participants of CIRED Serbia meeting and exhibition to present them selves.

Siemens veče / Siemens Dinner

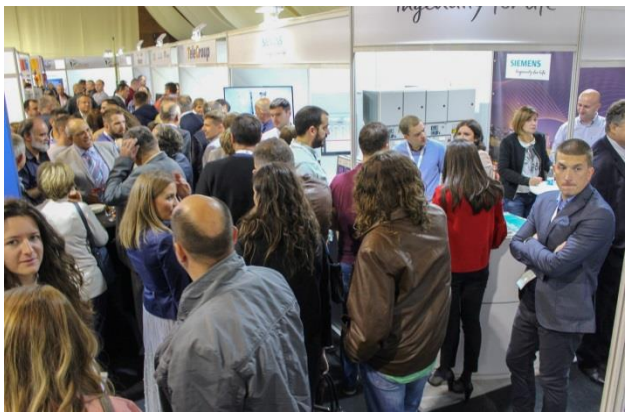
Siemens je svoje tradicionano veče organizovao u Hotelu Grand gde je napravio fantastičnu žurku uz pratnju muzičkog sastava.

Siemens has organized its traditional evening in Hotel Grand where it has made an excellent party accompanied with the musical performance.

Zajednička večera / *Dinner Ceremony*

Nakon četiri radna dana za sve učesnike kao i organizatore svečana večera bila je prilika za opuštanje i druženje sa starim i novim prijateljima.

After four day working program a dinner ceremony was an opportunity for relaxation and bonding with some old and new firends.






Tehnički sekretarijat Savetovanja / *Technical Secretariat of the Conference.*

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