Energy Technology and Governance Program

SOUTHEAST EUROPE DISTRIBUTION SYSTEM OPERATOR SECURITY OF SUPPLY WORKING GROUP WORKING GROUP MEETING

October 14-15, 2013

Holiday Inn – Skopje
Mosa Pijade Street 2
Skopje, 1000 Macedonia

AGENDA

Background

The Southeast Europe Distribution System Operator (DSO) Security of Supply Working Group is established to bridge a gap in energy development and to assist the electric distribution companies in Southeast Europe to improve their operations and overall system management through regional collaboration. Working Group members currently include representatives from the DSO's in Albania, Bosnia and Herzegovina, Croatia, Macedonia, and Serbia. Representatives from the regulatory agencies in these countries serve as observers to the Working Group.

During the first meeting in Zagreb in July 2013, the Working Group agreed to undertake a Benchmarking Study of key performance indicators. Results from this study will provide the DSOs, regulators, donors, and other interested parties a set of region-wide metrics on the extent to which distribution system outages threaten security of supply, an understanding of their route causes, and a comparison of the performance within the region and with other regions in their prevention and restoration of service.

A draft Terms of Reference for the benchmarking study, including a list of key performance indicators to be included and analyzed, was distributed following the meeting in July. These will be discussed and adopted during this meeting.

Objectives

The objectives of this meeting are to:

1) Review DSO comments to draft Terms of Reference for Benchmarking Study
2) Harmonize and adopt the performance indicators to be included in the Benchmarking Study
3) Discuss available distribution utility software to improve system reliability
4) Discuss the deployment of smart grid technology to improve operational performance and system reliability
5) Examine international best practices for how DSOs can prepare for the transition to retail electricity markets

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Monday, October 14, 2013

8:30 a.m. Registration

9:00 a.m. **Welcoming Remarks and Introductions**
Werner Hengst, CEO, EVN Macedonia
Albert Doub, Deputy Program Manager, United States Energy Association

9:10 a.m. **Review and Adopt Terms of Reference for Proposed Benchmarking Study**
Albert Doub, Deputy Program Manager, United States Energy Association
Tomislav Baricevic, Transmission and Distribution Department, Energy Institute of Croatia
Minea Skok, Transmission and Distribution Department, Energy Institute of Croatia

The working group will review and adopt the draft terms of reference for the benchmarking study. Each of the proposed key performance indicators will be discussed one-by-one to come to a common agreement on their definition and inclusion in the study.

The proposed key performance indicators fall into the following broad categories. A complete list of the performance indicators to be agreed upon is included as Annex 1 to this agenda:

- **General**
  (#customers, network length, # substations, service territory size etc.)

- **Operational Performance**
  (System Average Interruption Duration Index (SAID), System Average Interruption Frequency Index (SAIFI), Customer Average Interruption Duration Index (CAIDI), total number of losses, commercial and technical losses etc.)

- **Metering, Billing and Revenue Collection**
  (% of meter types (AMI, AMR, electro-mechanical), # disconnects due to non-payment; bill processing time, #meters readers, inspection and maintenance of meters,, #reconnections etc.)

10:30 a.m. Break

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11:00 a.m. **Review and Adopt Draft Terms of Reference for Proposed Benchmarking Study** – continued

- **Operational Cost Control**
  (Maintenance expenses, capital expenditures; # employees, # customers; average labor cost; training costs per 1000 employees per year, etc.)

- **Financial Performance and Competitiveness**
  (Average tariffs for residential, commercial and industrial customers; Return on assets, Cost of capital, depreciation index, etc.)

- **Customer Service**
  (Response time to customer complaints, # customer service employees, #customer centers)

12:00 p.m. Lunch

1:30 p.m. **Overview of NEPLAN Distribution Planning Software**
Luigi Busarello, BCP Switzerland
NEPLAN is a graphical based modeling and analysis software program that can help DSOs improve their overall network and operating efficiency. A representative from BCP Switzerland will provide an overview of the NEPLAN distribution software; how it can help DSOs calculate and analyze key performance indicators to be included in the benchmarking study; and how it can provide assistance for future activities of the working group.

2:30 p.m. **U.S. Experience: Deployment of Smart Grid Technology**
Chuck Hackney, Director, Telecommunication Services & Smart Grid Communications, CenterPoint Energy
Smart Grid Technology was identified as a high priority issue by the members of the working group. CenterPoint Energy, a U.S. electric distribution utility based in Houston, Texas, is widely regarded as a leader in the successful deployment of smart grid technology. A representative from CenterPoint Energy will discuss the challenges they faced in deploying smart grid technology and how it has helped improve their reliability and network efficiency.

3:30 p.m. Break

4:00 p.m. **Potential Training and Capacity Building Opportunities**
Open Discussion
Possible topics to be addressed through workshops, trainings, exchange visits, studies

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5:00 p.m. Adjourn

Evening Group Dinner hosted by USAID / USEA

Tuesday, October 15, 2013

9:00 a.m. **Retail Electricity Market Liberalization in Southeast Europe**
Milka Mumovic, Electricity Expert, Energy Community Secretariat

10:00 a.m. **Review and Adopt Draft Terms of Reference for Proposed Benchmarking Study** – continued

10:30 a.m. Break

11:00 a.m. **Next Steps and "To Do List"**

11:30 a.m. **EVN Presentation: "Steps EVN Macedonia has taken to Reduce Electricity Losses"**
Stefan Trost, Senior Project Manager, EVN AG

12:00 p.m. Lunch

1:30 p.m. **Site Visit to EVN Facilities**

- Visit to "Vizbegovo" region where EVN has deployed smart metering, alarm devices, motor patrols etc.
- Visit to EVN Macedonia Monitoring Center

4:00 p.m. Adjourn

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ANNEX ONE: Key Performance Indicators to be included in Benchmarking Study

General:

- Number of customers
- Electricity delivered to final consumers (MWH)
- Electricity demand annual growth rate (%) in last 5 years
- Distribution network length
- Number of supply substations (TS HV/MV, TS MV/MV, HV and MV switching stations)
- Number of distribution substations (TS MV/LV)
- Line/TS ageing per voltage level,
- Distribution networks operated and not owned by DSO (length of lines, number of TS, voltage levels),
- Supply area size
- Distributed generation total installed capacity per type (i.e. primary energy source, industry power plants,..),
- Number of employees
- Source of input data for this study (e.g. databases,..)

Operational Performance:

- SAIDI
- SAIFI
- CAIDI
- Electricity not delivered
- Total number of outages per year
- Volume and cost of aggregated technical and commercial losses technical losses (kWh) per year
- Level of losses approved by the regulator (% and kWh)
- Substation metering coverage separately at primary and secondary voltage level (%)
- % unplanned outages/total outages,
- Service restoration time distribution
- Annual replacement rate of distribution transformers (%)
- Connection principles and cost sharing policy

Customer Service:

- Number of service centres or reporting locations
- Lead time for new connections
- Lead time to provide service upgrades or changes to service
- Lead time to restore connection upon payment following disconnection
- Lead time to test/replace meters in case of complaint
- Response time from fault complaint to service visit
- Complaints received annually/100 customers
- Complaints received annually by the regulator
- Reason for complaints
- Basic issues to be resolved with the regulator, TSO and local authorities litigation cases initiated per year,
- Customer care staffing level/1000 customers
- Customer access to services,

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Metering, Billing and Revenue Collection

- Metered customers/total customers (i.e. ability to bill customers for energy consumption)
- Meter reading % (per consumer type)
- Average age of meters
- % of meter types (AMI, AMR, electro-mechanical)
- Meter replacement rate
- Number of calibrated meters per year
- Legal obligations on meter calibrations and replacements
- Annual cost of metering replacements and calibration
- Frequency of meter and seal inspection
- Frequency of meter inspection
- Service inspection frequency
- Frequency of provisional billing (% bills that are estimated)
- Frequency of billing errors
- Bill processing time (time lag between meter reading and bill dispatch)
- Average level of customer arrears
- Collection efficiency
- Number of payment processing points
- Legal conditions for disconnection
- Penalties for illegal connections
- Number of disconnects due to non-payment
- Number of disconnects due to theft
- Number of judicial proceedings for electricity non-payment and theft
- Cost of re-connection (average or estimated)
- Time period for re-connection without re-connection charge
- Collection rate a) in invoice deadlines, b) in fiscal year, c) in total

Operational Cost Control:

- Cost per customer, line length, MWh for distribution standalone,
- Functional shares of non-energy distribution costs,
- Total employment level/customer
- Total labour cost/customer
- Maintenance expense/capital expenditures
- Maintenance expense/book value of distribution assets
- Cost of training participation per 1000 employees per year

Financial Performance and Competitiveness:

- Average tariff levels for industrial, commercial and domestic customer classes
- Energy and non-energy shares of average tariff levels
- Cost recovery index
- Commercial losses (% of sales) (commercial loss = theft)
- Customer receivables / monthly revenue collections
- Depreciation index
- Return on assets

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- Cost of capital

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