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**HYDRO POWER AND ENERGY
PLANNING PROJECT (HPEP)**

STUDY TOUR IN EUROPE: SLOVENIA, AUSTRIA, GERMANY

March 30 – April 05, 2014

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TRIP REPORT

USAID HYDRO POWER AND ENERGY PLANNING PROJECT
(HPEP)

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DELOITTE CONSULTING LLP

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1.0 LIST OF ACRONYMES

Acronym	Term
ACER	Agency for the Cooperation of Energy Regulators
APG	Austrian Power Grid (Transmission System Operator)
BSP	Slovenian Market Operator
CBA	Cost-Benefit Analysis
DAP	Day Ahead Planning
DSO	DSO
ETM	Electricity Trading Mechanism
ELES	Electricity Transmission System Operator of Slovenia
ENTSO-E	ENTSO-E
EU	European Union
GEMM	Georgian Electricity Market Model
GNERC	Georgian National Energy and Water Supply Regulatory Commission
CHP	Combined Heat and Power
HICD	Human and Institutional Capacity Development
HPEP	Hydro Power and Energy Planning Project
HPP	Hydro Power Plant
MoE	Ministry of Energy
MO	Market Operator
PX	Power Exchange
RES	Renewable Energy Sources
TSO	Transmission System Operator
USAID	United States Agency for International Development

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Trip Report

Under the capacity building component of USAID Hydro Power and Energy Planning Project, a Study Tour in Europe was organized by HPEP HICD Team for Georgian electricity sector stakeholders.

The goal of the Study Tour was to increase the institutional capacity of the Energy Regulator, Market Operator, designated Transmission System Operator, and the Ministry of Energy in the areas related to competitive electricity trading practices and fully functional electricity markets by showing the work of well-developed power trading companies and operators in place. Such experience would provide Georgian Stakeholders the necessary expertise to build on the new market structure and set up modern trading systems, attract investment in RES, and promote cross border trading.

Three countries have been selected to host the study tour: Germany, (Statkraft Office in Dusseldorf), Austria (Transmission System Operator in Vienna), and Slovenia (Borzen, Market Operator, BSP - Slovenian Power Exchange, and ELES - Slovenian TSO). Slovenia has a well-established competitive electricity trading platform with Italy.

As per USAID HPEP's proposal, the heads of the organizations and decision-making staff participated in the study tour to foster facilitation of competitive energy trading in Georgia. **(The list of participants is provided as Attachment 1).**

March 31, 2014 - Meeting at Borzen, Slovenian Market Operator

Presentation about the operation of the Slovenian Market Operator was made by the Director of Energy Department, Mr. Borut Rajer. The main highlights of the presentations were market operations, balancing scheme, balancing market, and financial settlement.

The main findings for Study Tour participants at Borzen are given below:

- Borzen's two main activities are: Market Operations and supporting feed-in tariff system (Public Service Obligation).
- Buys and sells energy from RES and CHP;
- Acts as balancing responsible party;
- Supports energy efficiency;
- Registers Guarantee of Origin;
- Balancing market operation in Slovenia by registering schedules and bilateral contracts and submitting to TSO;
- Carries out imbalance settlement.
- There is no license required for traders, but there is a fixed registration fee (€50 K).

- Before balancing market was created, balancing prices were determined by import prices.
- Slovenia has two types of imbalance service: penalized and non-penalized; generators are sending day ahead schedules to Borzen and not to ELES

Below are the photos of Meeting at Borzen, Market Operator of Slovenia:



March 31, 2014 - Meeting with Slovenian Power Exchange, BSP South Pool

Presentation was made by Mr. Anze Predovnik, PX General Manager, explaining Power exchange operations, power trading practices, power trading risks and risk mitigations, market coupling with Italy and trading software.

Main findings of PX meeting are as follows:

- PX was created before balancing market
- BSP is owned by MO and TSO (50%-50%)
- Clearing is done in-house -100% advance deposit by traders
- Slovenia is coupled with Italy but prices are still different in each country
- Congestion helps to keep prices low in Slovenia and to bring TSO income

- Day-ahead market is preferable to bilateral negotiations because in case of a daily market the price index is available that ensures transparency of pricing for investors and banks.

Below are the Photos of the meeting at BSP South Pool of Slovenia:



April 01, 2014 - Meeting with ELES, Slovenian TSO

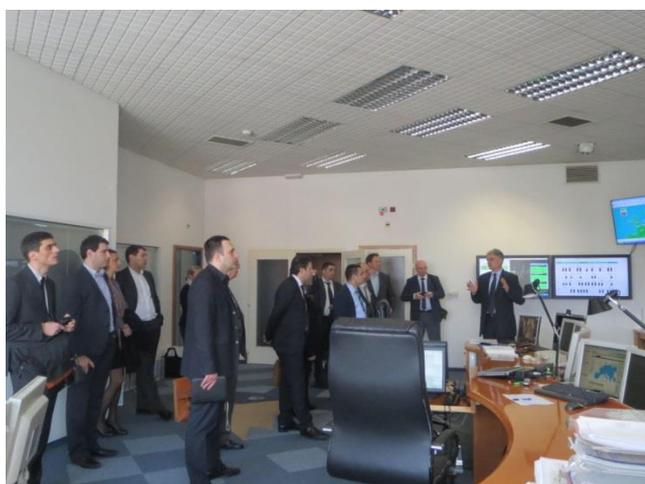
Presentation was made by Mr. Zoran Marcenko and Ms. Barbara Dekleva Jencic, Head of Market Relations Department. Mr. Marcenko also led Georgian delegation to the Slovenian dispatch center and showed the dispatching board, explained the operation of the grid organization and operation of ELES, its interaction and communication with MO, TSO and PX, interconnection capacity, transmission access, transmission rights, secondary trading of transmission rights, and implicit auctioning rules.

The main findings of the meeting with the Slovenian TSO are below:

- All generators and DSOs are still under government ownership
- ELES will purchase all transmission lines remaining in DSOs (110Kv)
- ENTSO-E prescribes primary reserve volumes for Slovenia
- ELES is using Neplan for load flow calculations and real time contingency analysis

- Primary reserve provisions by generators are obligatory and free
- Secondary and tertiary reserves are paid according to the service contracts between ELES and generator
- Import source can be used as reserve power

Below are the Photos of the meeting at ELES, Slovenian TSO



April 02, 2014 – Meeting with Austrian TSO (APG - Austrian Power Grid Control)

Georgian delegation was hosted by Mr. Kapetanovic, Head of TSO, who made an extensive presentation describing Austrian power system, obligations of the transmission system operator, obligations of the control area manager, independent transmission operator, renewables integration in Austria, European Network of Transmission System Operators; ENTSO-E: common activities of TSOs; Current priority issues in European transmission systems operation, and other important topics. Georgian delegation was also invited to see the Austrian dispatch board of the APG.

The most interesting findings for Georgian energy stakeholders are given below:

- There is no MO in Austria

- TSO is running BM and imbalance settlements are done by a designed agent.
- Three Transcos have joint agreements and the system is operated by APG
- Renewable energy is a problem in terms of the market development and scheduling and feed-in tariff system created a barrier for competitive market
- ACER will approve ENTSO-E's draft Network Codes in the near future.

Below are the Photos of the meeting at APG, Vienna:



April 03, 2014 – Meetings at Statkraft – Energy Generator and Trader, Dusseldorf, Germany

The first part of the Meeting in Statkraft was dedicated to the presentations made by the company leaders on the following topics:

- Fundamentals on the German Power Market;
- Modern Power Markets Functioning;
- Power Trading Across Borders;
- Energy Management;
- Continental Trading and organization, and
- Turkish Power Market

In the second part of the workshop Georgian delegation was introduced to the trading floor of Statkraft and observed the ongoing electricity trading process.

Major findings of the Statkraft workshop were as follows:

- In a long run market coupling and cross-border trading support social welfare, decrease prices and improve market efficiency;
- Statkraft's gas-fired power plants in Germany, under current prices are left without any income – no guaranteed revenues;
- Day-ahead accurate forecasting and planning is key for successful trading;
- Power Exchange is a media for competition between market participants, resulting in an optimal power plant dispatch with minimum transaction cost;
- Eastern European countries still are not fully harmonized which creates difficulties for Cross Border trading;
- Traders prefer standardized contracts for energy trading;
- Statkraft is ready to explore Georgian Market.

Below are the photos of Statkraft meetings:



Outcomes and Next Steps

Study Tour participants highly appreciated the knowledge and information received during the meetings and workshops, and highlighted the importance of such experience especially in light of the Georgia's forthcoming membership of EU Energy Community. They expressed great interest in the electricity trading issues, particularly in the topics most related to Georgian electricity sector, trading with Turkey and market coupling. Questions raised also concerned the issue of allocating responsibilities between the MO and TSO regarding balancing, price formation, market monitoring and regulation, and compliance with the EU requirements.

It was concluded that opening of electricity markets, competitiveness and regional trading are good for consumers, economy and social welfare. In the long run increased competitiveness will decrease the price of electricity. The main message of the Study Tour was, that Georgia needs to develop its market and open room for competition.

Experience of the countries visited showed that there is no universal formula for market development, every country has its own, cautiously elaborated market model, and Georgia should also develop its own market model, tailored to its specifics and needs.

APPENDIX 1: LIST OF STUDY TOUR PARTICIPANTS

Name	Position
Irina Milorava	Chairman, GNERC
Georgi Shengelia	Advisor in International Affairs, GNERC
Irakli Khmaladze	Deputy Minister, MoE
Giorgi Shukakidze	Deputy Head of Energy Department, MoE
Vakhtang Ambokadze	General Director, MO
Rusudan Mazmishvili	Head of Trading Office, MO
Sulkhan Zumburidze	General Director, GSE
Zurab Ezugbaia	Board Member, GSE
Ucha Uchaneishvili	Board Member, GSE
Archil Kokhtashvili	Head of Electrical Regimes and Development Department, GSE
Davit Dgebuadze	Head of Metering Department, GSE
Mikheil Tavberidze	Head of Contracts and Planning Department, GSE
Sukru Bogut	Senior Energy Infrastructure Advisor, USAID
Giorgi Chikovani	Deputy Chief of Party, USAID HPEP
Zviad Gachechiladze	TSO Support Team Leader, USAID HPEP
Irina Iremashvili	Outreach & Communications Manager, USAID HPEP

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