



# *Motorola: беспроводная связь для повышения безопасности и эффективности работы предприятий*



*II Всероссийская конференция  
менеджеров энергосбытовых  
компаний, инвестиционного  
сообщества и регулирующих  
органов исполнительной власти*

*16 – 20 октября 2007 г.*





- ✓ **Motorola для ведомственных и корпоративных заказчиков**
- ✓ **Motorola сегодня в России и в мире**

- ✓ **Решения Motorola для электроэнергетики**
- ✓ **Наш подход к работе с ведомственными и корпоративными заказчиками**

**Title of Presentation**



# MOTOROLA на корпоративном и потребительском рынках



Motorola Россия и СНГ Продукты и решения - Microsoft Internet Explorer provided by Motorola

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- Мобильные телефоны GSM
- Профессиональная мобильная связь
- Сети телекоммуникаций
- Широкополосные кабельные системы
- Санкт-Петербургский Центр разработки ПО

**ГЛОБАЛЬНЫЕ РЕШЕНИЯ ДЛЯ ПОВСЕДНЕВНОЙ ЖИЗНИ**

Мы верим, что можно обладать всем, чем пожелаешь. Именно поэтому Motorola предлагает широкий выбор продуктов и услуг - от мобильных устройств для конечных пользователей до решений для корпоративных заказчиков, ведомств и операторов услуг связи. Готовы к большему? Мы тоже.

Пользователь	Бизнес	Государственная организация	Поставщик услуг
<b>Мобильные Устройства II Решения Для Конечных Пользователей</b> Телефоны Аксессуары к мобильным телефонам Устройства с поддержкой Bluetooth	Транкинговые сети TETRA Радиостанции TETRA Транкинговые сети APCO 25 Аналоговые абонентские терминалы Решения широкополосной передачи данных Системы биометрической идентификации Системы SCADA	Транкинговые сети TETRA Радиостанции TETRA Транкинговые сети APCO 25 Аналоговые абонентские терминалы Решения широкополосной передачи данных Системы биометрической идентификации Системы SCADA	Продукты и решения MOTOw4 Wireless Broadband Networks Converged Core Solutions Решения Безграничной Мобильности Услуги и приложения

<http://www.motorola.com>

Internet

## Title of Presentation

# Motorola в мире



**MOTOROLA сегодня\*:**

**Число сотрудников : 66 тыс. человек**

**Объем продаж: 42,9 млрд. долларов**

**Инвестиции в НИОКР 4,1 млрд. долларов**

\* данные за 2006 г.



Title of Presentation

# Motorola в России



## **MOTOROLA в России:**

**1980 – поставка радиостанций для Олимпийских игр в Москве**

**1993 – открытие российского представительства**

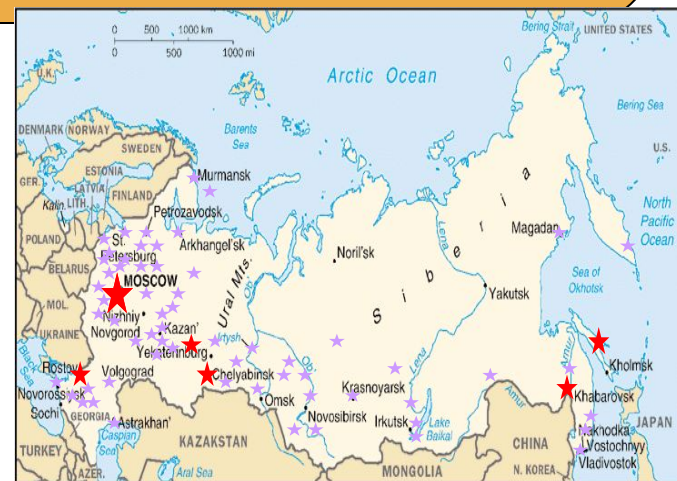
**1995 – открытие научно-исследовательской лаборатории в Москве**

**1997 – открытие Санкт-Петербургского центра по разработке ПО**

**Более 500 сотрудников в Москве и Санкт-Петербурге**

**Более 100 авторизованных дистрибьюторов и дилеров, более 20 сертифицированных сервисных центров**

**Опыт реализации масштабных системных проектов силами российских сотрудников не только в России, но и за рубежом**



## Title of Presentation

# Опыт долгосрочного партнерства



## '07 Норвегия: 20 лет

## Долгосрочный партнер

## '06 Португалия: 15 лет

## '06 Великобритания: 14 лет

## Title of Presentation

MOTOROLA и стилизованный логотип М зарегистрированы в Департаменте Патентов и Торговых Марок США. Все остальные названия продукции или услуг являются собственностью соответствующих владельцев. © Motorola, Inc. 2007

# *Motorola: беспроводная связь для решения технологических задач*



Решения Motorola беспроводной связи для электроэнергетики:

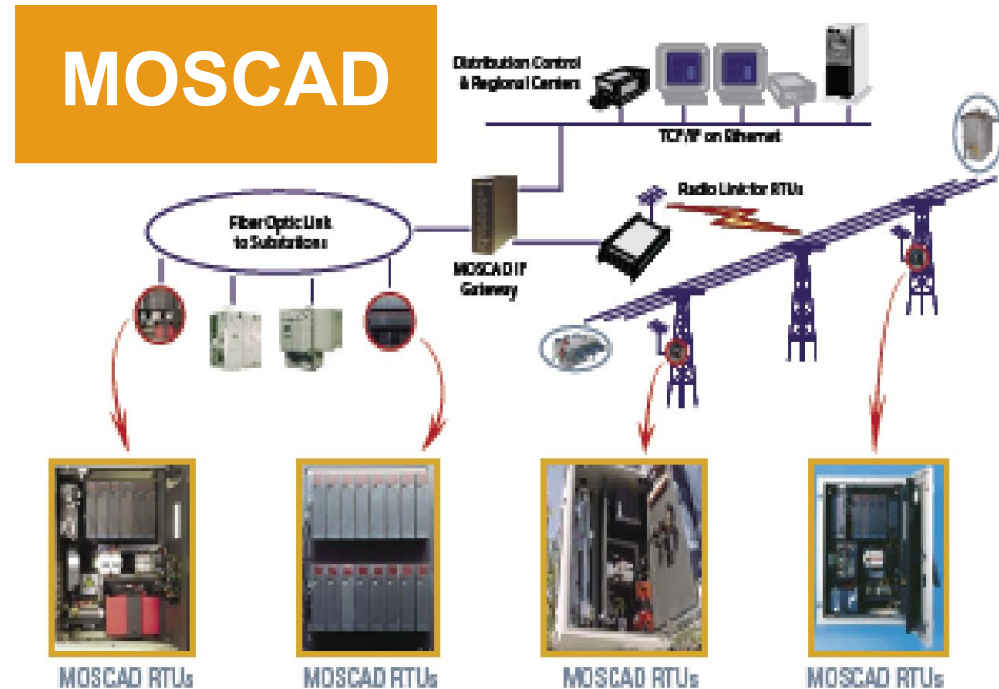
- ✓ Системы телеметрии SCADA (торговая марка Moscad)
- ✓ Системы радиосвязи открытых стандартов TETRA (торговая марка Dimetra IP) и APCO Project 25 (ASTRO 25)
- ✓ Взрывозащищенные терминалы TETRA стандарта ATEX
- ✓ Системы широкополосного доступа (MOTOWi4)
- ✓ Системы биометрической идентификации и контроля доступа

Title of Presentation



# Система мониторинга, управления и сбора данных MOSCAD (MOTOROLA SCADA)

Организация сбора данных, оперативного диспетчерского контроля и управления и сложными технологическими процессами для географически распределенных объектов.



Title of Presentation



# Наш подход к работе с заказчиками



*Ответственный подход к участию в тендерах.  
Мы всегда выполняем взятые обязательства.*

*Огромный опыт реализации проектов. Поддержка  
заказчиков на каждом этапе жизненного цикла проекта*

## **MOTOROLA – надежный выбор**

### **Оценка потребностей.**

Совместно с заказчиком выявление особенностей технологии, связи, эксплуатации

### **Проектирование**

Подбор оборудования АСУ ТП, отвечающего требованиям данного объекта. Разработка проектной и исполнительной документации.

### **Системная интеграция.**

Монтажные, пусконаладочные, строительные работы на объекте.



### **Модернизация системы.**

Moscad – легко наращиваемый комплект автоматизации. Модернизация по мере роста задач и потребностей.

### **Поддержка/ сервис.**

Гарантийное и послегарант. обслуживание.

### **Обучение пользователей**

Title of Presentation

# Опыт работы в стандарте TETRA



Province of Seita	Argentina	Prague Airport	Czech Rep.	Indian Central Railway (Mumbai)	India	Norway MoI	Norway	Taiwan High Speed Rail	Taiwan
Austria MOI	Argentina	Prague City Center	Czech Rep.	India (P1st)	Ireland	Petroleum Department of Oman	Norway	Taiwan High Speed Rail - Test track	Taiwan
Saigong airport	Austria	Copenhagen Metro	Denmark	Tanna Municipality	Italy	Chaska Metropolitan Police	Pakistan	Taiwan Railway Administration	Taiwan
TETRA (Terminals)	Austria	Copenhagen Airport	Denmark	Tanna Police (Terminal)	Italy	Krakow - Terminals	Poland	Taiwan's Railways MRT - KMT	Taiwan
Special State Protection Service	Azerbaijan	Copenhagen Airport	Denmark	Tunnel Monte Bianco - Terminals	Italy	Polish Army	Poland	Shanghai, Bankok Airport	Thailand
ASTRID (Terminal)	Belgium	DSB - Danish State Railway	Denmark	Uddevan State	Italy	Polish Police - Krakow	Poland	Telecom. Services of Trinidad & Tobago	Trinidad
Busse/airsoft - Belacocontrol	Belgium	HUR - Copenhagen Buses	Denmark	Frejus Tunnel	Italy/France	Polish Police - Lodz	Poland	Bon border	Turkey
Bulgarian Administration	Bulgaria	Dublin LUAS Light Rail	Ireland	Karachi/Jahangir Gas	Kazakhstan	Polish Police - Szczecin	Poland	Send Refinery	Tajikistan
Star Antena	Bulgaria	Dublin Police	Ireland	Buda/Budaun/Jan/Transit (at) Line 3	Korea	Polish Police - Warsaw (S4)	Poland	Duba International Airport-Terminals	UAE
Kumovo Antena	Bulgaria	Metka-Rotina Paper Mill	Finland	Daegu Police	Korea	Warsaw Public Transportation	Poland	Centre Scotland Police	UK
Armed Police (Belina)	China	ADP - Airport	France	Daegu Subway	Korea	Cairo Bus, Lisbon	Portugal	Cumbria Constabulary	UK
Beijing Light rail	China	Bordeaux Municipality - Terminals	France	GRN (P1st) - National Emergency	Korea	Lisbon Municipality	Portugal	Derby Police	UK
Beijing Metro Line 5	China	Cofroute A26 Highway	France	ITAC rail	Korea	Portugal - Madeira Government	Portugal	Dumfries & Galloway Constabulary	UK
Beijing Metro Line 1 & 2	China	EDF - Terminals	France	KSPN (Phase 1)	Korea	Portugal MOI - Nationwide	Portugal	Durham and Humberdale Police	UK
Beijing Police (Terminal)	CH								UK
GUOTZ - Beijing Int. Sec. Bureau	CH								UK
GUOTZ - Beijing Int. Sec. Bureau	CH								UK
Chengde etc.	CH								UK
China Armed Police (Terminal)	CH								UK
EPN Network, Shanghai Telecom	CH								UK
Guangzhou Metro	CH								UK
Guangzhou Metro Line 5 & 8	CH								UK
Hong Kong International Terminal (HIT)	CH								UK
Hong Kong Police	CH								UK
Jiuzhou Railway	CH								UK
KOFC - KSL - Hong Kong	CH								UK
Kowloon - Canton Rail - Corp. (South)	CH								UK
Olympic Games Naicing	CH								UK
Shanghai Airport	CH								UK
Shanghai Fire	CH								UK
Shanghai Metro (13 lines)	CH								UK
Shanghai Metro Line 4 - Northern Ext.	CH								UK
Shanghai National Police	CH								UK
Shanghai Security Service	CH								UK
Shanghai Traffic Police	CH								UK
Tianjin Light Rail	China	Riedel, Korea world cup	Germany	Utrecht Police	Netherlands	Basque Government	Spain	Seville Police	UK
Tianjin Metro	China	Rostock	Germany	Utrecht Region	Netherlands	Ebro River	Spain	Taxide Police	UK
Tianjin TEDA	China	Tegei Prison, Berlin	Germany	Kennemerland/Zeeland Police	Netherlands	Enders	Spain	UK Airbase Ambulance	UK
Yiwan Beijing Police	China	Traffic Rhein/Neckar	Germany	RFM, Zaanstreek/Waterland Police	Netherlands	Stro Municipalty	Spain	UK Airbase MFS	UK
MIAMI SEAPORT	China	Waltental Bewas Berlin	Germany	Limburg Zuid (© 2000) - Terminals	Netherlands	Guadiana river	Spain	West Meria Police	UK
MAR VAN SHAN PORT - Dimitra	China	WW Hannover	Germany	Nord-Holland/Amid	Netherlands	Iberian Airlines	Spain	Zetron	UK
Xin Jianshan Police	China	WW Hannover	Germany	Polite Orient	Netherlands	Madrid Municipality	Spain	Use of Man	UK
Xin Jianshan Railway	China	steno Olympic 2004	Greece	Shah Holland	Netherlands	Madrid Municipality (Madrid Calle 30)	Spain	Use of Man	UK
Xin Jianshan rail	China	OTE - Hellenic Telecommunications	Greece	Utrecht - Public Transport - Detronics	Netherlands	Madrid Municipality - Terminals	Spain	Use of Man	UK
Croatia MOI - MUPNet	Croatia	HIT-OTB	Hong Kong	Zaanstreek/Waterland Police	Netherlands	Madrid Underground	Spain	Government of the state of Aragua	Venezuela
Croatian MOI	Croatia	Kowloon - Canton Rail - Corp. (West)	Hong Kong	Zentel - MCOB	Netherlands	Navarra Government	Spain	Government of the state of Sucre	Venezuela
Sagek Transport	Croatia	Moscow Terminal	Hong Kong	Zentel - Zealand Police	Netherlands	Stockholm - Busset	Sweden	Government of the state of Tabara	Venezuela
Zentel Curacao	Curacao	Renny Bay	Hong Kong	OWA - All African Games	Nigeria	Stockholm - Busset	Sweden	Ministry of Bus, Water/MOPUS - Phase 1	Vietnam
Zentel Curacao subonly	Curacao	Iceland Nationwide - Nevdalifan	Iceland	Nigeria - Oil	Nigeria	Sweden SL Bus	Sweden		
City of Prague	Czech Rep.	TETRA Iceland	Iceland	Nigeria PS	Nigeria	Chand Rai Shek (CRS) - Airport Access	Taiwan		
MOI Czech	Czech Rep.	Deli Metro Rail Corporation	India	Sarajevo Airport	Norway	Taiwan CB&PE/NTU	Taiwan		

**320 контрактов  
в 68 странах  
мира**



## Title of Presentation

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# Опыт поставок систем телеметрии MOSCAD (MOtorola SCAda) для энергетики



EPEC	Argentina	Cerro Prieto	Mexico	
EPEC Los Molinos	Argentina	Los Azufres	Mexico	
EPEC Yocsina - Malaguenio	Argentina	Miguel Aleman	Mexico	
SECHEEP	Argentina	Horowhenua Energy	New Zealand	
Siderar Campana	Argentina	Energia del Sur	Peru	
Trans	Argentina	Philippine Geothermal	Philippines	
AGL	Australia	Maribor	Slovenia	
Pacific Power N.S.W.	Australia	Kran & Sellje	Slovenia	
Solaris	Australia	ESKOM	South Africa	
Solaris Pow, P	Australia	FECSA	Spain	
EDA	Azores Islands	FECSA	Spain	
ELFEC	Bolivia	Hongkong	Taiwan	
CEMIG	Brazil	Metropolitan Electric Authority (MEA)	Thailand	
CESP	Brazil	Thailand	Boston Edison	USA
Electrosul Brasil	Brazil	Northern State Power (NSP)	USA	
Garoto	Brazil	Savanna Electric	USA	
INFRAERO	Brazil	Cincinnati Gas & Elec.	USA	
PQU	Brazil	Soyland Power	USA	
PQU	Brazil	Baltimore Gas & Electric	USA	
Etobicoke Hydro	Canada	Belmont Electric, OH	USA	
Hydro Quebec	Canada	Jones - Onslow EMC	USA	
Hydro-Sherbrooke	Canada	Kanata Hydro	USA	
Kanata Hydro	Canada	Kansas Power & Light, Topeka, KS	USA	
Newfoundland Light & Power	Canada	Pierce Pepin Electric Cooperative	USA	
Compañía de Electricidad de Tulua	Colombia	Snowy Mountains	USA	
Empresas Públicas de Medellín	Colombia	Southern Carolina E.	USA	
EPSA	Colombia	United States Navy - PWC Phase 3	USA	
EPSA	Colombia			
EDF France	France			
Israel Electric Co. (IEC)	Israel			
Israel Electric Co. (IEC)	Israel			

**География реализованных  
проектов – весь мир**

## Title of Presentation

# Отзывы пользователей наших Moscad (SCADA) систем



PHYSICAL FORM 5077 (REV. 10-92) TEL. 1-800-331-8887 EXT. 14 FAX. 1-800-331-2674

Sao Paulo, February 14, 2000

Motorola Communications Israel Ltd.  
8 Karmel Street  
Tel Aviv, 61599 Israel

To: Zelig Herling

This is to confirm that Bioroad - Centrala Electrica de Centrala de Bioroad S.A. has installed since 1998, 7 large Moscad RTUs configured with 830 up to 1000 I/O points. The communication of these RTUs with Control Center is done through DNP 3.0 Protocol in mode slave and dual channel. These RTUs control and monitor the operation of High Voltage substations used for power transportation.

The Moscad based systems supplied by Motorola, including the hardware, basic software, protocol and application programs, are operating according to our specifications and are performing to our satisfaction. The system is in operation. External arrays bought more 7 large RTUs from 800 up to 1000 I/O points, the project is in development.

We will be glad to answer any questions you may have.

Sincerely yours,  
*Edurno Magin Galvanico*  
Technical Manager

Doc. 83100, 00.000 Page 1

A. D. Cordeiro de Mello, Leticia - SP and  
0648-00 - Sao Paulo - SP

To: Motorola Israel, SA  
Mardias Vilhinas, 52  
28027 Meiriel  
Spain

Mr. Jesus Maria,

Subject: Our Motorola MOSCAD RTU system

For more than 10 years we, the power company of Catalunya, are purchasing and installing Motorola MOSCAD RTU in our Distribution Automation system. We are using the MOSCAD models F90XX series. They are being used with fiber optic RTU and radio communication for distances of hundreds of kilometers throughout Catalunya.

The majority of the MOSCAD RTUs were installed in the last 5 years. Total MOSCAD RTUs installed in our system is about 500 units.

We are very satisfied with the performance and reliability of the MOSCAD RTUs.

Sincerely,  
*Guillermo Nofre*  
Guillermo Nofre, Controller  
Protectora Relsas & RTU Manager  
P.O. Box 1 - 08035 SA  
Tel.: 3493599490  
Fax: 3493593290  
Email: gnofre@proteccsa.com

ЭНЕРГОСЕТЬ  
HYDRO

8, Olan Olanov Street  
P.O. Box 1000  
1610, Tel-Aviv

Shmuel G. Golan, P. Eng.  
Chief Engineer  
Ramon Bar, Engineer  
Ruth G. Golan, P. Eng.  
General Manager & Director

March 30, 1992

To whom it may concern:

This is to confirm that Enebrokko Hydro is purchasing The Motorola Moscad RTU in a point to multipoint radio communication configuration. We will be using the RTU for its access of 100 pole top and padmounting setting and device operation applications, as well as 77.4 kV and 13.8 kV municipal station control and monitoring applications. The RTU will also be used as up to 6 Circuit Hydro owned transformer stations to monitor and control the 27.6 kV feeder breakers. In total we expect to ultimately use 250 to 300 of these RTUs.

Enebrokko Hydro has approximately 93,000 customers, serves an urban area of about 55 square miles, and has a system peak load of about 700 MW.

Sincerely,  
*Shmuel G. Golan*  
S. G. Golan, P. Eng.  
Director of Engineering  
AT&T



The Israel Electric Corp. Ltd.  
Supply and Stores Division  
Divisional Project Management

Fax: 972-4-8687118 Tel: 972-4-8687484 918 2123 18097002

FAX MESSAGE

To whom it may concern

Subject: Use of MOSCAD RTUs in Substation Installations

The Israel Electric Corporation Ltd. (IEC) installed during the past 10 years over 60 large MOSCAD RTUs supplied by Motorola for controlling the operation of our HV/MV substations in voltage levels of 400 kV, 160kV and 33 kV. These large configurations MOSCAD RTUs have a range of I/O points, up to 1500 points for single RTU and up to 3000 points per substation. Installation covered by multiple RTUs. These MOSCAD RTUs communicate with the Storage Energy Management System (SEMS) control center over a wide range of media including point to point lines, and fiber optics, and some RTUs are also equipped with radio link for low data rate backup communications when the main link is not available.

Motorola assisted our team to successfully integrate these RTUs with our existing communication and equipment. We are satisfied with the reliable operation and performance of MOSCAD RTUs and the ongoing support provided us by Motorola's team.

Doti Resniky  
*Doti Resniky*  
Head of Divisional Project Management  
Supply & Stores Division

The Israel Electric Corporation Ltd.  
Generation and Transmission Group  
Haifa, Israel, P.O. B. 31000  
Tel: +972-4-851944  
Fax: +972-4-824-9287

Date: October 14, 1997

To:  
Mr. Shlomo Segal  
Motorola Communications Israel Ltd.  
7 Karmel Street,  
Tel-Aviv, 61599 Israel

Subject: MOSCAD-Based Systems Supplied by Motorola

This is to confirm, that the Israel Electric Corporation has installed, since 1994, a range of MOSCAD Remote Terminal Unit-based systems. These RTUs control and monitor the operation of HV-MV substations, turbine generator sites, mobile HV-MV transformer substations, hundreds of MV pole-mounted load break switches and other applications.

The MOSCAD RTUs we use, range from small distribution automation RTUs serving up to 100 I/O points to very large substation RTUs serving more than 3000 I/O points. These RTUs report to our Regional Distribution Control Centers and to the National Energy Management System.

The MOSCAD-based systems supplied by Motorola, including the hardware, basic software and application programs, are operating according to our specifications and are performing to our satisfaction.

We will be glad to answer any questions you may have.

Sincerely yours,  
*Robi Lorber*  
Robi Lorber  
Manager, Computer Systems  
National Dispatch  
Israel Electric Corporation Ltd.

FE8-10-00 TEL 10-54 AX WROSL, MOTOROLA FAX NO. 847297153 1 2

Janus Onlow  
Electric Membership Corporation

310 Western Boulevard  
Indianapolis, IN 46204  
Telephone: (317) 545-0540

October 22, 1999

To: Bob Klawnsler  
From: Jeff Wilson  
Subject: Janus Onlow EMC Moscad Project

Re:  
Motorola has satisfactorily completed its Moscad project for Janus Onlow EMC. The following is a brief summary of completed items. Installation of all sites has been completed. DNP communication between the Moscad Equipment processor and Valmont Control has been completed. The status, analog, and control points are polling properly and returning correct values.

Janus Onlow EMC considers Phase 1 of the project complete and is ready for Phase 2 to proceed. Please feel free to contact us at (915) 285-1154 should you have any questions.

Sincerely,  
*Jeff Wilson*  
Jeff Wilson

VVE VYCHODČESKA ENERGETIKA

VVE VYCHODČESKA ENERGETIKA, A.S.  
SLADKOVSKÉHO 215  
501 03 Brno-Královo  
Czech Republic

Podle referenční kontrakční číslo: 285KNTL0001  
Datum: 2001-2004

CERTIFICATE OF SATISFACTORY OPERATION  
PARDUBICE REGION DAS SYSTEM

This is to certify that KONEKTET LTD Souda Integration Company, satisfactory delivered and commissioned Motorola Moscad RTU (RTUs) for our Distribution Automation System (DAS).

The Motorola Moscad RTU provides monitoring and control system for the Pardubice region Electricity network, the Moscad RTUs are installed at the line switches. Some of the Moscad RTUs were used as communication concentrators in the substations.

At the first phase we have installed 200 Motorola Moscad RTUs in year 2002.

We are using the Moscad RTU, which support DNP 3 protocol and MDX-C protocol. The Moscad Model numbers that was installed are F9089 and F9090.

We intend to expand the system to 500 RTUs in the near future.

We are very satisfied with the performance and reliability of the Motorola Moscad RTU.

For on behalf of VYCHODČESKA ENERGETIKA  
*Jan Jekel*  
Mr. Jekel, Manager  
Head manager of Dispatch center south  
Tel: +420 668 72330  
Fax: +420 497842108  
Email: jekel@kemjpr.vve.cz

Vychodceska energetika, a.s.  
Sladkovského 215  
501 03 Brno-Královo

Nejvyšší úřad  
Tel: +420 668 72330  
Fax: +420 497842108  
E-mail: vve@vve.cz

## Title of Presentation

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**СПАСИБО ЗА ВАШЕ ВНИМАНИЕ!**

**<http://www.motorola.com>**

**Татьяна Соловьева**

**тел. 495 785 0143, 495 920 0164  
факс 495 785 0185**

**[Tatiana.Soloviova@motorola.com](mailto:Tatiana.Soloviova@motorola.com)**

**Title of Presentation**