

# Standard Summary Project Fiche

## 1. Basic Information

1.1 CRIS Number (Year 1): BG 2004/016-711.06.01

1.2 **Title:** Implementation of the EU Directives 2003/54/EC on internal market in electricity and 90/547/EEC on transit of electricity through transmission grids, for the implementation of EU standard ETRF 89 and European Geostationary Navigation Overlay System (EGNOS).

1.3 Sector Energy

1.4 Location: Bulgaria

1.5 Duration: multi-annual 2004-2006

## 2. Objectives

2.1 Overall Objective(s):

Achievement of required level of implementation of the requirements of the EU energy acquis Directives 2003/54/EC and 90/547/EEC , transposed in the Bulgarian legislation and with regard to which there is a commitment for transposition and implementation before the accession date.

2.2 Project purpose:

Implementation of EU standard ETRF 89 and European Geostationary Navigation Overlay System (EGNOS), in implementation of the requirements of the Directive 2003/54/EC concerning common rules for the internal market in electricity and (repealing Directive 96/92/EC) and Directive 90/547/EEC concerning common rules for the transit of electricity through transmission grids.

2.3 Accession Partnership (AP) and NPAA priority (and implementing measures envisaged by the Action Plan for AP priorities related to strengthening administrative and judicial capacity)

- Implementation of the energy acquis and application of the same standards as those which apply within the Union;
- Pro-active and coordinated policy to reduce the energy intensity at all stages of the energy cycle.

2.4 Contribution to National Development Plan (and/or Structural Funds Development Plan/SDP) -  
N/A.

2.5 Cross Border Impact  
N/A

### 3. Description

#### 3.1 Background and justification:

An urgent and up-to date issue, having in mind the overall energy policy, is the achievement of compliance with the requirements of the EU standard ETRF 891, in implementation of the requirements of the Directive 2003/54/EC concerning common rules for the internal market in electricity and repealing Directive 96/92/EC and implementation of the requirements of the Directive 90/547/EEC on the transit of electricity through transmission grids. Nowadays Natsionalna Elektricheska Kompania EAD is the sole owner of a license for electricity transmission in the Republic of Bulgaria, which obliges the company to operate, maintain, repair and develop the electric networks and the auxiliary networks and facilities and to transfer electric power from the generating electric power plants to the electricity distribution companies and to the consumers connected at the high voltage networks, as well as to provide trans-border transit of electricity for other countries. Consumers of NEK EAD are all electricity distribution companies in the country and the consumers connected at the high voltage networks. In respect of the new Energy Act NEK will be separated in two parts – Transmission Company (the Transmission System Operator is part of it) and Public Supplier. The obligations of the Transmission Company defined by the Energy Act are attaining the European Norms of the Energy Efficiency and development and support of the concurrent regional energy market.

The high voltage networks are spread all over the country with total length 15000 km. The overhead power lines designs (part “Geodesy”) are developed in “System 70” (specific Bulgarian system), which was used before 1989 mainly for military needs. This system is incompatible with ETRF’89 and EGNOS. The achievement of compliance is necessary and urgent action since nowadays there is no GIS of Bulgarian high voltage networks and there is:

1. Limited and insufficient and unreliable information about the size and the location of the transmission company sites (substations and electric power lines), about the type and the ownership of the terrains through which the high voltage lines pass and about their right-to-way zones.
2. Insufficient meteorological and ecological data along the routes and the resulting impact on the transmission networks.
3. An urgent need for provision of exact information for the physical characteristics of the high voltage power lines .
4. Insufficient available information for repair planning.
5. Need for support to NEK EAD experts in their operational and maintenance activities.
6. Need for establishment of the Geographical Information System (GIS) for the transmission company as an element of the infrastructure for the development of the liberalized electrical power market.
7. GIS of High voltage networks, developed in ETRF’89 and EGNO system will become a part of the National cadastre.

The implementation of GIS of the Bulgarian high voltage networks will submit to NEK a powerful instrument for information, analysis and planning of the development and the maintenance of the machinery and equipment, owned by NEK. It will be an instrument for exact definition of the problem points in the high voltage networks and fast and exact navigation to the place of the problem. GIS will be used by the experts involved in the construction, repair and maintenance of the equipment. GIS will support NEK in its activities connected with the increase of the high voltage network availability and in respect with the development and participation in the regional concurrent energy market.

In the future the Geographical Information System of the High Voltage Networks will provide interface with the specialized Software System for the Electricity Market Operator.

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<sup>1</sup> ETRF’89 means European terrestrial frame used in Europe since 1989 as European standard. ETRF’89 is a part of WGS84 (World Geodetic System) as a standard geodetic referenced system

### 3.2 Sectoral Rationale

*Not applicable*

### 3.3 Results:

- Established and commissioned multifunctional corporate geographical information system for the Bulgarian high voltage networks, harmonized with ETRF '89 and compatible with EGNOS and GALILEO (which will be in commercial operation from 2008). The geographical information system will contain:
  - Three-dimensional digital model of the lay under the power lines and their facilities and at the substations, the disposition of the wires and the distances between the wires and the terrain relief, as well as three-dimensional digital model of sites from other infrastructure systems;
  - Database with geodetic, climatic, ecological, technical and operational data for the network facilities, graphics and digital snap-shot material for the facilities and the relief;
  - Information reports about:
    - a. The size and the ownership of territories bordering or laying under the network facilities; the restrictions for usage of the said territories; data about the owners and the legal relations between the transmission company and the owners;
    - b. Technical information reports on quantities and qualities at the facilities;
    - c. Operational statistical and graphical information reports and analyses, maintenance protocols – faults, repairs etc.;
    - d. Data output - coordinates, status of the facility, optimal way for access to the facility etc., towards global positioning system (GPS) and/or pocket PC or PDA, used by the maintenance staff of the transmission company;
  - Interfaces for information and data exchange with other information systems;
  - System for customers authorized access (including the usage of Internet) and data protection degrees;
  - Means for automatic drawing of the power lines longitudinal profiles, where all crossings in the safeguard zone of the relevant power line are mentioned.

### 3.4 Activities:

#### Activities Year 1:

- Terms of references, tendering, contracting
- Development of application software for GIS of NEK - “High Voltage Networks” Enterprise ;
- Delivery of base software and technical equipment for the information system;
- Testing of parts of the system;
- Training of personnel of the divisions of NEK - “High Voltage Networks” Enterprise and the personnel at its headquarters.
- Geodetic measurements in appointed divisions of NEK - “High Voltage Networks” Enterprise.

#### Activities Year 2:

- Introducing of pilot technical equipment for GIS in the divisions of NEK - “High Voltage Networks” Enterprise where the measurements are completed
- Training of the personnel in these divisions, covering all parts of the system.

- Data import in the data base;
- Geodetic measurements in appointed divisions of NEK – “High Voltage Networks” Enterprise.

### Activities Year 3:

- Accomplishment of geodesic measurements;
- Completed introducing of pilot technical equipment of GIS in divisions of NEK - “High Voltage Networks” Enterprise.
- Training of the personnel in these divisions, covering all parts of the system;
- Data import in the data base;
- Connection between GIS and other information systems, used by National Electric Company, “High Voltage Networks” Enterprise, Ministry of Energy and Energy Resources, Ministry of Agriculture and Forestry, Ministry of regional development and public works, independent power producers and clients of NEK and other state bodies.

### *3.5 Linked activities:*

- SCADA of the National Dispatching Center of NEK EAD (the both systems – SCADA and GIS support the TSO with on line information about the status and the failures of the equipment – HVLines and substation)
- Management Information System (MIS) of NEK EAD
- BG9411-01-02 – Organizational and technical measures for monitoring and control of electric energy losses in the electricity transmission and distribution systems;
- BG9601-03-03 - Power Sector Restructuring for Creation of Incentives for Competition and Private Investment
- Geodetic measurements of the HV lines and substations situated on the territory of Blagoevgrad, Burgas and Ruse regions (total 2500 km) – financed by NEK
- Structure of the technical and operational data base with preliminary defined references – financed by NEK

### *3.6 Lessons learned:*

Two years ago NEK started the procedure for development of a GIS for the high voltage network. Currently NEK has the results of the geodetic measurements of the HV lines (450 km) and the substations on the territory of Blagoevgrad, which were carried out in the period 2002 - 2003. Now a measuring of the geodetic data of the HV lines and substations for the regions of Ruse (850 km) and Burgas (1200 km) is going on. The results will be submitted to NEK at the end of 2004. A project for development of the technical and operational data base of the facilities and equipment owned by NEK was carried out.

## **4. Institutional Framework**

The institution – recipient is the Ministry of Energy and Energy Resource (MEER).  
The beneficiary institution of the project is the Natsionalna Elektricheska Kompania EAD.

The overall coordination and implementation of the project will be carried out by MEER. Project Implementation Units (PIUs) of NEK EAD, High Voltage Networks Enterprise will be responsible for the project implementation. The PIUs are responsible towards MEER and CFCU at the Ministry of Finance for the operational management of the project. A Steering committee, consisting of a Chairman (MEER), a Secretary (MEER), members – experts from NEK EAD, High Voltage Networks Enterprise, MEER and an observer of the EC Delegation, will be set up.

After the completion of the Project NEK EAD will become an owner of the assets.

The Ownership of the GIS is a public one. NEK EAD is managed by a Board of directors, appointed by the Minister of Energy and Energy Resources.

The Executive director of the Company is responsible for developing the company's strategy and policy. The branches and the Enterprise Units are run by managers, responsible for operating and managing.

## 5. Detailed Budget

	<b>Phare Support</b>					
<b>Year 1/Phase 1</b>	Investment Support	Institution Building	<b>Total Phare (=I+IB)</b>	<b>National Co-financing*</b>	<b>IFI*</b>	<b>TOTAL</b>
Contract - Technical assistance		0.9	0.9			0.9
Contract - Supply of equipment	0.6		0.6	0.2	-	0.8
<b>Total year 1</b>	<b>0.6</b>	<b>0.9</b>	<b>1.5</b>	<b>0.2</b>	<b>-</b>	<b>1.7</b>
<b>Year 2/Phase 2</b>						
Contract - Technical assistance	-	2.25	2.25	-		2,25
Contract - Supply of equipment	0.525		0.525	0.175	-	0.7
<b>Total year 2</b>	<b>0.525</b>	<b>2.25</b>	<b>2.775</b>	<b>0.175</b>	<b>-</b>	<b>2.95</b>
<b>Year 3/Phase 3</b>						
Contract - Technical assistance	-	0.3	0.3	-		0,3
<b>Total year 3</b>	<b>-</b>	<b>0.3</b>	<b>0.3</b>	<b>-</b>		<b>0.3</b>
<b>Total for the project</b>	<b>1.125</b>	<b>3.45</b>	<b>4.575</b>	<b>0.375</b>		<b>4.95</b>

The Phare contribution for investment costs will be no more than 75% of eligible public expenditure, the balance having to be covered by the national co-financing. The national co-financing will be provided by the National Fund Directorate at the Ministry of Finance. All operational and running costs and the maintenance of the equipment will be provided by the final beneficiaries.

*\* From the National budget*

## 6. Implementation Arrangements

### 6.1 Implementing Agency

The Central Finance and Contracting Unit (CFCU) at the Ministry of Finance (102 "Rakovski" St.; tel.: +359298592772; fax: +359298592773) manages the programme and is responsible for administrative and financial management of the projects, which cover the tendering, contracting, accounting, payments and reporting as well as submission of documents to be endorsed by the Commission.

The National Aid Coordinator is the Minister of Finance.

6.2 Twinning - no

6.3 Non-standard aspects  
The PRAG will be strictly followed.

6.4 *Contracts*

Year 1 (2005)

- One Service contract with total budget 900 000 EURO Phare assistance and
- One Supply contract with total budget 800 000 EURO – 600 000 EURO Phare assistance and 200 000 EURO national co-financing

Year 2 (2006)

- One Service contract with total budget 2 250 000 EURO Phare assistance and
- One Supply contract with total budget 700 000 EURO – 525 000 EURO Phare assistance and 175 000 EURO national co-financing

Year 3 (2007)

- One Service contract with total budget 300 000 EURO Phare assistance

## **7. Implementation Schedule**

### **For Year 1**

7.1 *Start of tendering/call for proposals*  
January 2005

7.2 *Start of project activity*  
May 2005

7.3 *Project completion*  
April 2007

## **8. Equal Opportunity**

Men and women have equal rights to participate in the implementation of the project. There are no restrictions with regard to ethnical origin, religious or political allegiance.

## **9. Environment**

The project will have no hazardous environmental impact.

## **10. Rates of return**

- *Economic rate of return*

The economical effects of implementation of GIS are as follows:

- reduction or complete elimination of clearances-related outages. Reducing clearances-related outages brings considerable economical effect to the transmission grid owner – every outage on the line involves various costs for the utility ranging from huge compensations to the industrial consumers to the costs associated with locating the clearance issue and bringing the line back to service. Expert expectation of 50% decrease of the repair planning time.
- Insurance premiums reductions – As a direct result of improved reliability of the transmission grid, there is a base for insurance premiums reductions

- Increase of capacity to transit and export electricity

- *Financial rate of return*

The financial rate of return will be known after the completion of the Feasibility Study.

- *Feasibility studies which have been complete*

Pilot project – GIS for a small part of High Voltage Network.

## **11. Investment criteria**

### 11.1 Catalytic effect:

Phare's support will catalyse the implementation of the project, which would otherwise be delayed with 8 - 10 years.

### 11.2 Co-financing:

The co-financing of 0,375 MERO will be done from the State budget.

### 11.3 Additionality:

Phare grants will not displace other financiers especially from the private sector or IFIs.

### 11.4 Project readiness and size:

Project is ready for contracting. Project specifications and tender requirements have been completed. A Tender procedure for elaboration of an independent Feasibility study was launched by NEK EAD on 30 March 2004.

### 11.5 Sustainability:

The investments will be sustainable in the long term, i.e. beyond the date of accession. They will comply with EU norms and standards and be in line with EU sector policy Acquis. NEK EAD and its assignee will pay for future maintenance and operating costs.

### 11.6 Compliance with state aids provisions

Investments respect the state aids provisions.

### 11.7 Contribution to NDP and/or Structural Funds Development Plan/SPD

N.A.

## **12. Conditionality and sequencing**

The project is not dependent on any specific conditionality.

Sequencing:

The main part of tendering and contracting will be finished in the first year. The development and implementation of GIS in a part of the transmission grid will begin in the first year of the project. The results of geodetic measurements of a part of the transmission grid will be ready too. In the

second and third year GIS – measurements and implementation, will be introduced in the other transmission regions.

**ANNEXES TO PROJECT FICHE**

1. Logical framework matrix in standard format
2. Detailed implementation chart for year1/phase 1
3. Contracting and disbursement schedule by quarter for full duration of programme (including disbursement period) for year1/phase 1
4. Needs Assessment and technical specification
5. Administrative capacity
6. List of relevant laws and regulations
7. List of relevant strategic plans



LOGFRAME PLANNING MATRIX FOR Project:	Programme name and number <b>National PHARE 2004</b>	
<b>Implementation of the EU Directives 2003/54/EC and 90/547/EEC</b>	Contracting period (year 1) expires 30.11.2006	Disbursement period (Year 1) expires 30.11.2007
	Total budget: 4.95 MEURO	Phare budget: 4.575 M EURO

<b>Overall objective</b>	<b>Objectively verifiable indicators</b>	<b>Sources of Verification</b>	
Achievement of required level of implementation of the requirements of the EU energy acquis, Directives 2003/54/EC and 90/547/EEC transposed in the Bulgarian legislation and with regard to which there is a commitment for transposition and implementation before the accession date.	<ul style="list-style-type: none"> <li>Developed legislative framework in compliance with the EU Energy acquis</li> <li>Directives 2003/54/EC and 90/547/EEC fulfilled at required level.</li> <li>Developed competitive electricity market</li> </ul>	<ul style="list-style-type: none"> <li>Regular EC Progress Report</li> <li>Accession Partnership</li> <li>Energy balances</li> <li>National institute on Statistics – Section Energy</li> <li>NEK statistics</li> </ul>	
<b>Project purpose</b>	<b>Objectively verifiable indicators</b>	<b>Sources of Verification</b>	<b>Assumptions</b>
Implementation of EU standard ETRF 89 and European Geostationary Navigation Overlay System (EGNOS), in implementation of the requirements of the Directive 2003/54/EC concerning common rules for the internal market in electricity and (repealing Directive 96/92/EC) and Directive 90/547/EEC concerning common rules for the transit of electricity through transmission grids.	<ul style="list-style-type: none"> <li>Development of GIS of the high voltage networks <ul style="list-style-type: none"> <li>3D data for the lay under the overhead high voltage lines and their facilities and at the substations, the disposition of the wires and the distances between the wires and the terrain lay, as well as three-dimensional digital model of sites from other infrastructure systems;</li> <li>Step by step implementation of GIS of the high voltage networks by the end of year 2006</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Energy and Energy Resources, “European Integration and International Projects” Directorate</li> <li>Phare monitoring reports</li> <li>Report by the project steering committee</li> <li>Reports by the National Electric Company on the activities, which are carried out.</li> </ul>	<ul style="list-style-type: none"> <li>Effective cooperation and involvement of the institutions in the energy sector</li> <li>Maintained and used project database</li> <li>Relevant information campaign implemented</li> </ul>

Results	Objectively verifiable indicators	Sources of Verification	Assumptions
<p>Powerful instrument for effective planning of the HV lines repairs, decreasing of the costs for clearances maintenance, electric loads forecast which consists of:</p> <ul style="list-style-type: none"> <li>• Multifunctional corporate geographical information system for the Bulgarian high voltage grid harmonized with ETRF '89 and compatible with EGNOS and GALILEO established and commissioned. The geographical information system will contain: <ul style="list-style-type: none"> <li>▪ Three-dimensional digital model of the lay under the power lines and their facilities and at the substations, the disposition of the wires and the distances between the wires and the terrain lay, as well as three-dimensional digital model of sites from other infrastructure systems;</li> <li>▪ Database with geodesic, climatic, ecological, technical and operational data for the network facilities, graphics and digital snap-shot material for the facilities and the relief;</li> <li>▪ Information reports about: <ol style="list-style-type: none"> <li>a. The size and the ownership of territories bordering or laying under the network facilities; the restrictions for usage of the said territories; data about the owners and the legal relations between the transmission company and the owners;</li> <li>b. Technical information reports on</li> </ol> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• GIS commissioned by end of March 2007</li> <li>• Preserved availability of the high voltage networks in the range of 0,9995-0,9999 by increased load 15-20% to year 2007</li> <li>• Decreased transmission losses by 2,0%</li> <li>• The repair planning time decreased of about 50%</li> <li>• Availability of updated information for the technical conditions of the machinery and equipment of the high voltage networks</li> <li>• Availability of updating high voltage networks map with an exact information for the problem points;</li> <li>• GIS of the High Voltage Network opened for usage by the state bodies and all energy market participants.</li> <li>• Step by step opening of GIS for external consumers according to their needs and rights for using of that system.</li> </ul>	<ul style="list-style-type: none"> <li>• Reports by steering committee on implementation of GIS</li> <li>• Report by the NEK EAD on the results of the GIS software and hardware implementation</li> <li>• Releases of information system reports, resulting from the information system.</li> <li>• Contracts for utilization of the GIS usage</li> </ul>	<ul style="list-style-type: none"> <li>• Completed training of the personnel of NEK, responsible for the maintenance and the development of the high voltage networks</li> </ul>

quantities and qualities at the facilities;

- c. Operational statistical and graphical information reports and analyses, protocols from emergencies and carried out maintenance works;
  - d. Data output /coordinates, status of the facility, optimal way for access to the facility etc./ towards GPS and/or PDA, serving the maintenance staff of the transmission company;
- Interfaces for information and data exchange with other information systems established;
  - System for customers authorized access /including the usage of Internet/ and data protection degrees established;
  - Means for automatic drawing of the power lines longitudinal profiles, where all crossings in the safeguard zone of the relevant power line are mentioned.

Activities	Means		Assumptions
<ul style="list-style-type: none"> <li>• Geodetic measurements in certain divisions of the NEK EAD, “High Voltage Networks” Enterprise.</li> <li>• Development: designing the model of the GIS, developing of application software for adjusting the base software for the needs of the GIS.</li> <li>• Delivery of base software</li> <li>• Delivery of technical equipment for the information system.</li> <li>• Implementation of GIS at stages, training of the personnel.</li> <li>• Connection between GIS and other information systems of NEK EAD, with external information systems of: Ministry of Energy and Energy Resources, Ministry of Agriculture and Forestry, Ministry of regional development and public works and other state bodies</li> </ul>	<ul style="list-style-type: none"> <li>• Technical assistance contract</li> <li>• Supply contract</li> </ul>		<ul style="list-style-type: none"> <li>• Effective co-operation with other institutions – state bodies and all participants in the electric market</li> </ul>
			Preconditions
			<ul style="list-style-type: none"> <li>• Proper well training staff</li> </ul>

## ANNEX 2

## DETAILED IMPLEMENTATION CHART

COMPONENTS	2005												2006												2007												
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
Phase 1/ Year 1																																					
Activity 1 – Technical assistance																																					
- Tendering	x	x	x	x	x	x	x																														
-Project activities								x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									
Activity 2 – Supply of equipment																																					
- Tendering	x	x	x	x	x	x	x																														
- Supply								x	x	x	x	x	x																								

### CUMULATIVE QUARTERLY CONTRACTING SCHEDULE in MEuro/€

Projects Sub-Projects	Expected Contractual Commitments ( Quarters)												Budget Allocation (Phare Funds)
Implementation of GIS of High Voltage Network of Bulgaria.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
<b>Year 1</b>	<b>2005</b>				<b>2006</b>				<b>2007</b>				
Technical assistance contract	0	0	0.9	0.9	0.9	0.9	0.9	0.9	0.9				<b>0.9</b>
Supply contract	0	0	0,6	0,6	0,6	0,6	0,6	0,6	0,6				<b>0.6</b>
<b>Total (Phare funds)</b>	<b>0</b>	<b>0</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>	<b>1.5</b>				<b>1.5</b>

### CUMULATIVE QUARTERLY DISBURSEMENT SCHEDULE in MEuro/€

Projects Sub-Projects	Expected Contractual Commitments ( Quarters)												Budget Allocation (Phare Funds)
Implementation of GIS of High Voltage Network of Bulgaria.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
<b>Year 1</b>	<b>2005</b>				<b>2006</b>				<b>2007</b>				
Technical assistance contract	0	0	0.3	0.3	0.6	0.6	0.6	0.9	0.9				<b>0.9</b>
Supply contract	0	0	0,3	0,6	0,6	0,6	0,6	0,6	0,6				<b>0.6</b>
<b>Total (Phare funds)</b>	<b>0</b>	<b>0</b>	<b>0.6</b>	<b>0.9</b>	<b>1.2</b>	<b>1.2</b>	<b>1.2</b>	<b>1.5</b>	<b>1.5</b>				<b>1.5</b>

## CUMULATIVE QUARTERLY SCHEDULE FOR THE NATIONAL CO-FINANCING in MEuro/€

Projects Sub-Projects	Disbursement (Payment) Schedule ( Quarters)												Budget Allocation (National Co- financing from the State budget)
Implementation of GIS of High Voltage Network of Bulgaria.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
<b>Year 1</b>	<b>2005</b>				<b>2006</b>				<b>2007</b>				
Supply contract	0	0	0	0,2	0	0	0	0	0	0	0	0	<b>0.2</b>

## ANNEX 4

### NEEDS ASSESSMENT

Specification of the works and the supply of the software and the hardware components which are elements of the geography information system of the Bulgarian high voltage network

1. Geodesic measurement – the prices of the geodetic measurements are specified as average price on the base of offers of Bulgarian geodetic companies participated in the tenders announced by NEK. The prices of satellite snap shots of the routes and the terrains for additional information about the vegetation and facilities near the overhead lines and substations owned by NEK are added to the geodesic measurement prices..
2. The price of the consultancy contract for the project organisation and implementation( tender procedures for contracting the works and the supply; terms of reference elaboration (TOR)) is defined on the base of the prices of contracts with European consultants.
3. The prices of the design of GIS, components/software- base software and hardware/, and organization of works, programming application software, implementation and transformation of coordinates and pictures from the Bulgarian geodesic system 1970 to ETRF' 89 are defined on the base of such services in Bulgaria

### Service contract

Activities	Types		Quantities	Prices	Total
Geodesic measurement	Terrestrial measurement /Survey/		12 000 km and 500 dka	245 ₺ 80 ₺	2 940 000 ₺ 40 000 ₺
	Aerial – Satellite	foto	110 000		110 000 ₺
		Processing/ortorectification/	30 000		30 000 ₺
Elaboration of:	Consultancy on the project organisation and implementation: tender procedures for contracting the works and the supply; terms of reference elaboration (TOR)			200 000 ₺	200 000 ₺
	Design of GIS, components/software- base software and prepared templates for customising and hardware/, and organization of works			30 000 ₺	30 000 ₺
	Programming application software:		Extension of the base software by prepared templates for customising the commercial software product to facilitate the end-user	20 000 ₺	20 000 ₺
			Application software for input control of the specific data types	15 000 ₺	15 000 ₺
			Application software for automation editing and support of spatial model of electrical network	10 000 ₺	10 000 ₺
			Application software for automation design of profiles	25 000 ₺	25 000 ₺



Implementation	Training	End-users: management staff, technology staff - 50 persons	500 ₺	25 000 ₺
		Software administrators and developers - 15 persons	800 ₺	12 000 ₺
	Input of geodesic and attribute data for	650 power lines with 15 000 km length, 50 000 towers, 320 substations and details about their surface and electrical switchyards		200 000 ₺
	Data purchase from outside sources	Data for agricultural, forestry and settlement lands through which the high voltage power lines pass	15 000 ₺	15 000 ₺
		Coordinates of the Bulgarian ETRF'89 points	300 ₺	300 ₺
		Maps of the Bulgarian territory; delivery scanning, georeference, vectorizing of infrastructure sites and relief elements with benchmarks	107 000 ₺	107 000 ₺
	Registration in the national cadastre of the geodesic data for the high-voltage networks	650 power lines with 15 000 km length, 50 000 towers, 320 substations and details about their surface	30 000 ₺	30 000 ₺
	Transformation of coordinates and pictures from the Bulgarian geodesic system 1970 to ETRF' 89		30 000 ₺	30 000 ₺

**SUBTOTAL 3 834 300 ₺**

### **Supply contract**

The price of the main servers including OS and DBMS is defined for starting configuration for 58 customers in the headquarter and in the 13 transmission regions. One main server will be situated at the headquarter and a second one will be situated at other part of Bulgaria.

The number of the licenses for GIS BASE software products are defined according their functions, and the prices of the s/w – on the base of the most distributed GIS software.

The transmission regions (13) are the places where the main volume of GIS data will be input.

Work stations (total 36 pcs. – for each transmission region - 2 pcs.) with better features than the common PC for graphical data processing.

Colour A0 scanner for precise scanning of updated maps.

Large scale A0 laser printer – for new designs connected with the geography of the facilities.

Colour A3 laser printers – one pc. for each transmission region.

Communication equipment - one **router** for each transmission region and the headquarter.

Handhelds /pocket PC/ for data collection for the equipment status and GPS – for navigation of the emergency maintenance squad cars of the high-voltage network enterprise and movement control .

The prices of the computer equipment are compared with the prices on the Bulgarian market

Data purchase from outside sources – the sources and the prices are according the Bulgarian market.

Application software for technical tasks solution –Line design; Definition of the wires sagging and tensions in multi spam systems; Structural analysis of power systems – the prices are defined on the base of catalogues and leaflets.

Deliveries:				
System resource :	Main servers including OS and DBMS	2	122 000 ₺	244 000 ₺
	GIS BASE software products	28 licence for end users 30 licence for managers 13 licence for developer 13 DB conection 1 3D Analyst	41 300 ₺ 15 000 ₺ 85 246 ₺ 133 197 ₺ 10 000 ₺	284743 ₺
	Local servers for 13 power transmission regions	13	5 000 ₺	65 000 ₺
	Work stations	36	3 000 ₺	108 000 ₺
	Colour A0 scanner for precise scanning of maps with 1:25 000 scale	1	20 000 ₺	20 000 ₺
	Large scale A0 laser printer	1	15 000 ₺	15 000 ₺
	Colour A3 laser printers	13	5 000 ₺	65 000 ₺
	Communication equipment /Routers/	14		105 000 ₺
	Handhelds /pocket PC/ for data collection for the equipment status	28	600 ₺	16 800 ₺
	GPS – for navigation of the emergency maintenance squad cars of the high-voltage network enterprise and movement control	30	300 ₺	9 000 ₺
Data purchase from outside sources	Data for agricultural, forestry and settlement lands through which the high voltage power lines pass			20 000 ₺
	Coordinates of the Bulgarian ETRF'89 points			300 ₺

	Maps of the Bulgarian territory; delivery scanning, geo reference, vectorizing of infrastructure sites and relief elements with benchmarks		107 000 ₺
Application software for technical tasks solution –Line design; Definition of the wires sagging and tensions in multi spam systems; Structural analysis of power systems		23 400 ₺	56 160 ₺ for 8 licenses (with rabat)

**SUBTOTAL 1 116 003 ₺**

## ANNEX 5

### ADMINISTRATIVE CAPACITY

The “International Projects and Aid Programmes” Department (IPAP Department), “European Integration and International Projects” Directorate, MEER will be the division within MEER acting as a PIU for the present project jointly with the “International Cooperation” expert from the State Energy Regulatory Commission. The IPAP Department will cooperate with the “European Integration” Department, within the “European Integration and International Projects” Directorate, MEER, Energy Efficiency Agency and State energy Regulatory Commission experts, in the process of project implementation.

The IPAP Department, within MEER is responsible for the management of the projects financed under PHARE programme incl. the overall programme cycle: identification, preparation, coordination of the implementation and evaluation of the projects, according to the Administrative structure of MEER. The IPAP Department main functions are:

- Planning, coordination and administrative management of the activities, regarding the utilization of the Preaccession Funds: National PHARE Programme, PHARE CBC, ISPA financial instrument;
- Preparation of projects under the EC programmes SAVE and ALTENER;
- Operational planning, coordination and management of other energy programmes and projects, under international aid and external investments;
- planning, coordination and financial and administrative management of conventional energy projects, financed under Kozloduy Decommissioning Support Fund; etc

The IPAP Department has the relevant capacity for execution of its responsibilities and its staff is highly experienced in the field of Phare programme cycle. From the beginning of Phare programme for Bulgaria, the IPAP Department (Phare PMU till 1999) have managed a number of Phare programmes with more than 70 projects with a total budget more than 60 MEURO.

The IPAP Department consists of Head of Department, 2 state experts, 1 senior expert and 2 junior experts.

An effective system for management, implementation and monitoring of Phare projects has been established at MEER. For each project a Steering Committee and Working groups are established, consisting of Project Administrator and relevant experts from MEER and from the project beneficiary institutions. The responsibilities of the Steering Committee, the Working groups and the project administrator are specified in the approved by the Minister of energy and energy resources “Statut, responsibilities and tasks of the Steering Committees, Working groups and Administrators for management of energy projects financed under Phare programme and under other international organisations and programmes”.

From the beginning of Phare programme for Bulgaria, the IPAP Department, (Phare Conventional Energy PMU till 1999) has managed about 27 projects, relative to the adoption and implementation of the conventional energy acquis, amounting to some 27.04 MEURO. 11 of these conventional energy acquis related PHARE projects were committed after 1999. The later are listed below:

- National PHARE Programme; Project number: BG 0201.10 - Technical Assistance in Liberalizing the Natural Gas Market and pre-privatization preparation of Unbundled Bulgargaz Parts;
- SARA Programme; Project number: BG9805-01-01-04/01 - Power sector privatization studies – Grid code, Power purchase agreements, Tariff and pricing policy, Secondary legislation;
- SARA Programme; Project number: BG9805-01-01-04/02 - Power sector privatization studies – Regulatory Costing for Price Approval;
- National PHARE Programme; Project number: BG9601-03-02 - Preparation of the legislation for creation of Energy Service Company (ESCO);

- National PHARE Programme; Project number: BG0003.04 - Institutional building of SERC;
- National PHARE Programme; Project number: BG0009.02 - Institutional building of CUAPEP;
- National PHARE Programme; Project number: BG9601-02-02 - Technical assistance to the NEK EAD;
- National PHARE Programme; Project number: BG9404 – Construction of flue gas desulphurisation plants at units 7 and 8 in TPP “Maritsa East 2”
- National PHARE Programme; Project number: BG9508-01-01 - Harmonization with the EU norms and standards;
- National PHARE Programme; Project number: BG9508-01-03 - Technical assistance for the establishment of Energy Regulatory Authority;
- National PHARE Programme; Project number: BG9508-01-06 - Technical Assistance for the development of strategy and harmonization of the legislation in the district heating sector with the EU ones.
- National PHARE Programme; Project number: BG 9508-01-08 - Technical assistance for the development of a tariff policy and energy saving campaign;
- National PHARE Programme; Project number: BG 9508-01-09 - Technical Assistance for the development of an energy strategy

At the same, several acquis related projects were implemented under bilateral programmes, or were funded by another donors. They are listed below:

- 2003 – World Bank - “Harmonization of the Bulgarian legislation with the acquis communautaire in the energy sector”
- Year 2002 - Cooperation with Canada – under SEETEC project – “Technical assistance for elaboration of a concept for electricity market liberalization strategy”;
- 2000/2001 - MATRA programme of the Dutch government; Project number: 21561 A BG; implemented by a Consultant – volunteer – “Evaluation of the compliance of Bulgarian energy legislation with the respective EU legislation in the context of the accession process”;
- 2000/2001 - MATRA programme of the Dutch government; Project number: 21548 A BG; implemented by a Consultant – volunteer – “Development of a regulatory framework for the transition of the “single buyer” model to the model of regulated third party access to the electricity and gas market in conformity with acquis communautaire”

## ANNEX 6

### LIST OF RELEVANT ACTS AND REGULATIONS

#### EU acts:

- Directive 2003/54/EC concerning common rules for the internal market in electricity and repealing **Directive 96/92/EC** concerning common rules for the internal market in electricity;
- **Council Directive 90/377/EEC** concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users;
- Regulation (EC) No 1228/2003 of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity;

#### National acts:

- **Energy Act** (adopted by the National Assembly on 26 November 2003) and the sub law acts for its application which will be adopted:
  - ordinance concerning licenses;
  - ordinance concerning price formation and regulation;
  - rules concerning conditions for regulated third party access to the networks;
  - rules for trade with electricity and natural gas; technical rules (Grid code) for the networks;
  - ordinance concerning tradable green certificates.
- **Energy Efficiency Law** (adopted by the National Assembly on 05 March 2004) and the sub law acts for its application which will be adopted:
  - Ordinance transposing Council Directive 92/42/EEC of 21 May 1992 on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels;
  - Ordinance transposing Directive 2000/55/EC of the European Parliament and of the Council of 18 September 2000 on energy efficiency requirements for ballasts for fluorescent lighting;

## ANNEX 7

### LIST OF RELEVANT STRATEGIC PLANS

1. Energy Strategy (adopted by the Council of Ministers on 22 May 2002, decision N 279, and by the National Assembly on the 27 July 2002);
2. National Plan for Economic Development 2000 – 2006 (adopted by the Council of Ministers on 5 June 2003)
3. Multiannual Programming Document 2004 – 2006
4. National Programme for the Adoption of the Acquis (NPAA)
5. Accession Partnership
6. Roadmap for EU accession for Bulgaria