

## **Standard Summary Project Fiche - IPA centralised programmes**

### **Project number 26: Implementation of Energy Component of the National Strategy for Sustainable Development**

#### **1. Basic information**

- 1.1 CRIS number: 2009/021-765**
- 1.2 Title:** Implementation of Energy Component of the National Strategy for Sustainable Development
- 1.3 Elarg Statistical Code:** 03.15
- 1.4 Location:** Republic of Serbia

#### **Implementing arrangements:**

- 1.5 Contracting Authority:** EU Delegation to the Republic of Serbia
- 1.6 Implementing Agency:** EU Delegation to the Republic of Serbia
- 1.7 Beneficiary (Including Details of Project Manager):**

Ministry of Mining and Energy of Republic of Serbia (MME)

#### **Financing:**

- 1.8 Overall Cost (Vat Excluded): 2.500.000 EUR**
- 1.9 EU Contribution: 2.500.000 EUR**
- 1.10 Final date for contracting:** 2 years after signature of the FA
- 1.11 Final date for execution of contracts:** 4 years after signature of the FA
- 1.12 Final date for disbursements:** 5 years after signature of the FA

#### **2. Overall Objective and Project Purpose**

##### **2.1 Overall Objective:**

Contribute to sustainable development in Serbia by enhancing capacities in the energy sector to efficiently use resources according to EU standards.

##### **2.2 Project Purpose:**

Building capacity in the energy sector which will lead to the implementation of the sustainable energy policy, implementation of Kyoto protocol, rational use of conventional fuels and increased use of renewable energy sources.

##### **2.3 Link with AP/NPAA / EP/ SAA**

**The European partnership** sets out the short-term priorities (section: sectoral policies, subsection: energy) such as:

- Fulfil the obligations arising from the Energy Community Treaty as regards the full implementation of the *Acquis* on the internal gas and electricity market and on cross border exchanges in electricity.
- Strengthen the administrative capacity within the relevant ministries.

**The European partnership** identifies key short term priorities (section: sectoral policies, subsection: *environment*) as follows:

- Accelerate approximation of legislation and standards to the EU *Acquis*.
- Implement the adopted legislation, notably on environmental impact assessment.
- Begin implementing the Kyoto Protocol.

**The European partnership** highlights the following medium-term priorities (section: *sectoral policies*, subsection: *energy*):

- Adopt and implement a long-term strategy for an environmentally sustainable energy policy;
- Continue to implement regional and international commitments in this area with a view to establishing a competitive regional energy market;
- Ensure full implementation and enforcement of legislation approximated to the EU legislation;
- Implement the relevant international conventions and the Kyoto Protocol.

**Stabilization and Association Agreement (Title VIII, cooperation policies, Article 109 – Energy)** states that cooperation shall focus on priority areas related to the Community *Acquis* in the field of energy. It shall be based on the Treaty establishing the Energy Community, and it shall be developed with a view to the gradual integration of Serbia into Europe's energy markets. Cooperation may include in particular:

- a) the formulation and planning of energy policy, including modernization of infrastructure, improvement and diversification of supply and improvement of access to the energy market, including facilitation of transit, transmission and distribution and improvement of energy interconnections of regional importance with neighbouring countries;
- b) the promotion of energy saving, energy efficiency, renewable energy and studying the environmental impact of energy production and consumption;
- c) the formulation of framework conditions for restructuring of energy companies and cooperation between undertakings in this sector

**Stabilization and Association Agreement (Title VIII, subtitle: Cooperation policies, Article 109 –Energy)**

Cooperation shall focus on priority areas related to the Community *Acquis* in the field of energy. It shall be based on the Treaty establishing the Energy Community, and it shall be developed with a view to the gradual integration of Serbia into Europe's energy markets. Cooperation will include:

- a) the formulation and planning of energy policy, including modernisation of infrastructure, improvement and diversification of supply and improvement of access to the energy market, including facilitation of transit, transmission and distribution and improvement of energy interconnections of regional importance with neighbouring countries;
- b) the promotion of energy saving, energy efficiency, renewable energy and studying the environmental impact of energy production and consumption;

## **Stabilization and Association Agreement (Title VIII, subtitle: Cooperation policies, Article 111 –Environment)**

The Parties shall develop and strengthen their cooperation in the environmental field with the vital task of halting further degradation and start improving the environmental situation with the aim of sustainable development.

The parties shall, in particular, establish cooperation with the aim of strengthening administrative structures and procedures to ensure strategic planning of environment issues and coordination between relevant actors and shall focus on the alignment of Serbia's legislation to the Community *Acquis*.

Cooperation could also centre on the development of strategies to significantly reduce local, regional and trans-boundary air and water pollution, to establish a framework for efficient, clean, sustainable and renewable production and consumption of energy, and to execute environmental impact assessment and strategic environmental assessment. Special attention shall be paid to the implementation of the Kyoto Protocol.

**National Program for EU Integration– NPI**, (refer to 3.15. Energy Sector p.443-456) highlights current legislative and institutional framework in the energy sector including energy efficiency, short-term (2008-2009) and Middle-term priorities (period 2010-2012) in legislation and institutional framework, recruitment and financial needs, self-funds, and foreign assistance funds for the realization of current projects in 2008-2009.

### **2.4 Link with MIPD**

**In the MIPD 2009-2011** (Section 2.3.1- Ability to assume obligations of membership, 2.3.1.3 Objectives and choices, point 5. “Support the development and implementation of strategies and policies in order to establish sectoral policies and a regulatory framework compatible with European standards”

**Energy:** Support to meet the requirements of the Energy Community Treaty, relevant Community Directives and regional market obligations; compliance of legislation with the ‘*Acquis*’. *Attention should be also paid to energy efficiency, renewable energy, radiation protection.*

### **2.5 Link with National Development Plan**

N/A

### **2.6 Link with National/Sectoral Investment Plans**

This project falls within the framework of national, regional and Energy Community Treaty provisions. The strategic actions in the energy sector are defined in three documents: Energy Law, Strategy of Energy Sector Development and Strategy Implementation Programme.

Article 4 of **the Energy Law** (“The Official Gazette RS”, No. 84/2004) states that the “Energy Policy of Republic of Serbia is enforced through the **Energy Sector Development Strategy**. Measures and activities to reach goals of the Strategy are elaborated in more details in the Programme for Implementation of Energy Sector Development Strategy 2007-2012 Programme comprises of 15 modules and was adopted by the Government of Serbia in January 2007.

**The first - basic Priority of continuous technological modernization** of the existing energy facilities/systems/sources, in the following sectors: oil, natural gas, coal including strip mining and underground mining, power sector, with production facilities – thermal power plants, hydropower plants and thermal power plants-district heating companies and

transmission system i.e. distribution systems, and thermal energy sector – district heating companies and industrial power plants.

- **The Second - Directed Priority of Economical Use of Quality Energy Products** and increase in the energy efficiency in the production, distribution and utilization of energy by end consumers of energy-related services.
- **The Third - Special Priority of Use of NRES** (new renewable energy sources) and new, more energy efficient and environmentally acceptable energy technologies and installations/equipment for energy utilization.

Further relevant legislation and strategic documents are listed in Annex 4.

The **National Strategy of Economic Development of Serbia (2006-2012)** has the following objectives and measures/ activities to achieve these objectives (Section 5.4 Infrastructure, 5.4.1 Energy and Mining):

- Harmonize the practice and legislation with the EU (Implement the provisions of the Energy Community Treaty; Further harmonize the legal framework with EU Directives)
- Legislative activities (Harmonize the relevant regulations with the EU; establish a legal framework and identify incentives for better use of renewable energy sources).

In May 2008 Serbian Government adopted National Strategy for Sustainable Development, which defines key priorities for sustainable development of Serbia, followed by the Action plan for implementation of Sustainable development Strategy, which sets institutional framework and the specific measures and activities for realization of the objectives envisaged by the Strategy.

Sustainable Development objectives in the energy sector, foreseen by the Strategy are:

- Increase of energy efficiency;
- Wider use of renewable energy sources;
- Rational use of natural resources;
- Implementation of the international conventions, protocols and treaties regarding the climate change, air protection, etc
- Harmonization of national legislative with EU regulations;
- Raising the public awareness on sustainable development in the energy sector.

### **3. Description of Project**

#### **3.1 Background and Justification**

Serbia imports up to half of its energy requirements. This percentage has grown substantially over the past several years, mainly due to a rise in the consumption of oil derivatives and gas. The revival of industry, following the privatization of a number of large state companies as well as high GDP growth over the past several years (5.5% annually between 2004 and 2007), have been the greatest driver of this growth in final energy consumption.

In comparison to the OECD average Serbia consumes 2.7 times as much energy per unit of output. In 2007 Serbia consumed 15 million tons of oil equivalents (Mtoe) of energy, with 52 percent coming from heavily-polluting domestic sources of coal, 27 percent from oil, 14 percent natural gas, and 7 percent hydro source. The country imports most of the oil and gas it consumes, relying on imported energy to meet 37 percent of its needs.(Source: The Serbia Energy Efficiency Agency.)

The Ministry of Mining and Energy is responsible for energy and mining policy of the Republic of Serbia. The development of the energy sector in Serbia is guided by the Energy Development Strategy up to 2015, approved by the Government and Parliament in 2005 and the 'Programme for the Implementation of the Strategy for the Development of the Energy Sector 2007 – 2012 (which is the detailed plan for implementing the energy strategy), approved by the Government in 2006. This plan explicitly states the need to achieve harmonisation with the *Acquis* on energy.

The overall goal of energy sector reform is the rational use of energy and energy sources, as well as increasing energy efficiency in production, transmission, distribution and consumption. This includes establishing qualitative new conditions for operations and development of energy production sectors and energy consumption sectors, which would stimulate the economic development of the Republic of Serbia, promote environmental protection and integrate the domestic energy sector into regional and European energy markets. The basic strategic directions of energy sector development in the Republic of Serbia are:

- Safe, qualitative and reliable supply of consumers with energy, with decreased import of energy sources,
- Restructuring of energy system, increasing energy efficiency with increased use of energy efficient and ecologically acceptable technologies and renewable sources of energy,
- Harmonized development of energy activities in order to secure necessary quantities of energy and energy sources for satisfying the needs of energy and energy sources' buyers.

Importantly, Serbia's Energy Development Strategy 2015, underlines the need to support New Renewable Energy Sources (NRES), e.g. biomass, geothermal, solar, and wind power. In addition Special Energy-Efficient and Environmentally-Friendly Technology Programs have also been included in the Strategy (such as new coal, biomass and waste burning solutions, technologies for decentralized production of electric power and heat based on natural gas, and small and mini-hydroelectric plant technology), aiming to cut the consumption of imported fuels and produce more electric and heat power, with a significantly lower adverse environmental impact. The strategy foresees that the share of NRESs in total final energy consumption should rise to 1.5 –2% by 2015. To achieve this goal the Strategy includes actions such as the adoption of additional legislation, enacting financial and non-financial incentive measures, implementation of investment projects; establishing new expert institutions, the training of more experts; and increased efforts to monitor the implementation of these policies.

The entry into force of the Energy Community Treaty in July 2006 (Treaty) imposed significant obligations on Serbia to comply with the EU *Acquis* in the energy and environmental field. Under the Treaty, the scope of the *Acquis* which must be implemented are primarily Directive 2003/54/EC concerning common rules for the internal market in electricity, Directive 2003/55/EC, concerning common rules for the internal market in natural gas and Regulation 1228/2003/EC on conditions for access to the network for cross-border exchanges in electricity. The provisions of the Energy Community Treaty obliges Serbia as a Contracting party to implement the Directive 2001/77/EC which promote the use of electricity from Renewable Energy Sources (RES) and Directive 2003/30/EC which supports the use of bio fuels or other renewable fuels for transport with the possibility that other obligations will be added. The Treaty also obliges Serbia to implement Council Directive

1999/32/EC relating to a reduction in the sulphur content of certain liquid fuels by 31 December 2011 and stipulates in its Article 13. importance of acceding to Kyoto Protocol.

Serbia ratified the Kyoto protocol in October 2007 as a non Annex one Country meaning that it is eligible to implement the Kyoto Protocol Clean Development Mechanism. The Initial National Communication to the UN Framework Convention on Climate Changes (UNFCCC) is currently under preparation and the Ministry of Mining and Energy is responsible for the preparation of the chapter dealing with environmental mitigation measures. The Ministry of Mining and Energy will also have an important role in the creation of the National Inventory of Green House Gases (GHG), as the energy sector is one of the largest emitters of GHG.

To date hydropower represents the most significant renewable energy sources in Serbia (approximately 30% of the total power production is generated in the hydropower plants). Serbia produces around 12.5 million tons of biomass (60 percent from agricultural production and 40 percent from forests) out of which 1/3 could be used for energy purposes. Ultimately, this current waste material has the potential to produce 2.6 Mtoe, equivalent to about 19 percent of Serbia's fossil fuel consumption. Serbia has the capacity to produce 200 thousand tons of bio diesel per year, which exceeds national demand and opens the possibility of exports, especially to Southeast Europe (Ministry of Mining and Energy).

The territory of Serbia has favourable geothermal characteristics. There are four geothermal provinces. The most promising are the Pannonian and Neogen magmatic activation provinces. More than eighty low enthalpy hydrogeothermal systems are present in Serbia. The most important are located at the southern edge of the Pannonian Basin. The reservoirs of this systems are in Mesozoic limestone's with a thickness of more than 500 m. Geothermal energy in Serbia is being utilized for balneological purposes, in agriculture and for space heating with heat exchangers and heat pumps. Exploration to date has shown that geothermal energy use in Serbia for power generation can provide a significant component of the national energy balance. The prospective geothermal reserves in the reservoirs of the geothermal systems amount to  $400 \times 10^6$  tonnes of thermal-equivalent oil. The prospects for use of heat pumps on pumped ground water from alluvial deposits along major rivers are favourable. For intensive use of thermal waters in agro and aqua-cultures and in district heating systems, the most promising areas are west of Belgrade westward to the Drina, i.e. Posavina, Srem, and Macva. Reservoirs are Triassic limestone's and dolomites >500 m thick, which lie under Neogene sediments. The priority region is Macva, where reservoir depths are 400-600 m, and water temperatures are 80 °C. (Source: EBRD 2006)

In light of future EU integration the obligations of the Republic of Serbia regarding Green House gases (GHG) emission reduction will increase in the next years, therefore it is necessary to prepare Ministry staff for meeting this challenge (in terms of different programs and alignment of national legislation). In addition to shortcomings in legislation, Serbia also largely lacks standards (for equipment, RES extraction procedures, etc) that are common in the EU. Regulation governing RES utilization, and plant design and installation, are also absent. Potential investors interested in funding electric power production from RES have to endure a very complicated administrative procedure – a major obstacle for private investments into this field.

To date explorative analysis of Ground Heat Exchangers (GHE) and Combined Heat and Power/Cogeneration (CHP) potentials has been limited and data is not systematized and available to the public. Implementation of the project components that address these issues will enable an assessment of the overall Ground Heat Exchangers (GHE) and Combined Head and Power (CHP) potential, by gathering and analyzing existing data, screening the current state and conditions of the above mentioned fields, as well as the development of adequate database

and technologies in promoting the renewable benefits of these energy sectors. The project will also define future needs for the detailed GHE explorations and CHP construction, identifying the prospective locations (in the case of CHP the different fuel requirements).

The Project will include analysis of the existing legal and institutional framework for the Ground Heat Exchangers (GHE) utilization and Combined Heat and Power/cogeneration (CHP) construction in Serbia, aiming to identify the barriers and corrective measures necessary in order to create conditions for their wider use.

For the purpose of monitoring the current situation and sustainable planning and development in the energy and mining areas it is necessary to establish an overall Management Information System (MIS) which will form the basis for responsive decision making in the sustainable development following Serbian Energy and Mining Policy. This requires the development and use of sustainable development indicators measuring the economic, environmental and social impacts of mining and energy facilities at State and company levels. These indicators should be developed and applied as per the requirements of the National Sustainable Strategy (which is based on the globally accepted principles as defined in the Johannesburg Declaration, UN Millennium Development Goals and EU Sustainable Development Strategy). Such indicators are necessary for drawing up policies and sectoral actions, identifying and controlling risks, identifying and implementing sustainable development actions, negotiating between stakeholders, improving production, etc.

At present, the Ministry of Mining and Energy does not have an integrated MIS which could support the work of the Ministry and promote efficient inter-institutional collaboration. Due to absence of this MIS system it is impossible to optimize the internal work of Ministry staff or to coordinate effectively with the range of institutional and civil actors dealing with energy production consumption and renewable.

The range of institutional actors include: The Energy Agency of the Republic of Serbia - the overall regulatory body for Serbia's energy market, the Energy Efficiency Agency, the Mining Agency, the Group for Renewable and Alternative Energy Sources in the Ministry of Environment and Urban Planning, key line ministries (Agriculture, Economy, Public Administration and Local Government). In addition, Energy Institute is also planned to be created, which will act as a policy think-tank in the sector. Under this project the IMIS should be supported and implemented through the common effort of the above actors, with the overall objective of making reliable information and policy making network for the main governmental bodies in the energy sector.

### **3.2 Assessment of Project Impact, Catalytic Effect, Sustainability and Cross Border Impact**

In line with EU Energy Directives this project's impact will reduce Serbia's use of non-renewable energy sources and lay the foundations for sustainable economic development. The project will ensure that the energy sector is prepared for new initiatives in the areas of energy efficiency, the optimum use of renewable sources of energy as well as responsible management of geo-thermal and mineral resources.

The renewable energy sector has major economic and employment generation potential. For example a study carried out by the Faculty of Technical Science of Novi Sad University estimates that Serbia's current alternative energy potential can create 24,000 new jobs by 2020. Of these new positions, 18,000 would be in designing and producing new renewable energy, 4,000 would focus on maintaining the newly built installations, while 2,000 would concentrate on additional activities. It is estimated that with the proper regulatory

environment and support system approximately 14,000 of these new jobs could be created from Serbia's agricultural biomass capacity.<sup>1</sup>

The air pollution from mobile sources is mainly caused by quality of petrol and diesel fuel, which are not fully in compliance with EU standards, out-of-date vehicles and generally poor technical standards of the vehicle fleet. The implementation of the plan for meeting EU standards regarding quality of petrol and diesel fuels and reduction of the sulphur content in certain liquid fuels has major monetary and health benefits for Serbia's population.

Wider use of CHP in Serbia would increase energy efficiency and decrease the fossil fuel consumption which will provide reduction of GHG emission. Introduction of new CHP facilities will also generate new employment opportunities. All these economic, social and environmental benefits are of the crucial importance for the sustainability of energy sector.

In the area of climate change the Ministry of Mining and Energy has an active role, both in terms of preparing mitigation measures and National GHG Inventories. It is important to build the technical capacity of the employees in the Ministry of Mining and Energy so that they will be able to fulfil current obligations arising from the signature of the UNFCCC and the Kyoto Protocol, specifically implementing the Marrakesh Accords, and also from potentially new obligations which might arise from the UNFCCC conference in Copenhagen (December 2009) as well as the EU integration process.

The results of the study on GHE will be presented through the internet portal of the Ministry and will serve all potential investors with valuable information regarding the locations of GHE. This available data will provide necessary preconditions for attracting investments in the GHE exploitation, leading to the diversification of Serbia's energy sources.

### **3.3 Results and Measurable Indicators:**

**Result 1:** Kyoto protocol mid-term implementation plan in energy and mining sectors prepared and public awareness campaign on the importance of sustainable development carried out.

#### **Measurable indicators:**

- Drafts and final copy of Kyoto Mid-Term Implementation Plan
- Number of Consultations with Stakeholders
- Number of Training modules provided in Plan Implementation
- Number of Publicity Events.

**Result 2:** Plan for implementation of EU legislative related to the quality and the monitoring the quality of petrol and diesel and reduction the sulphur of certain liquid fuels Directive prepared.

#### **Measurable indicators:**

- Number of Draft Plans and final plan
- Number of Training Modules Delivered and Staff Trained

**Result 3:** Prepared analysis of the existing legal and institutional framework for GHE utilization and completed Study on GHE potential in Serbia.

#### **Measurable indicators:**

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<sup>1</sup> Biomass and biogas feedstock potentials in Vojvodina Faculty of Technical Science (Milos Tesic and Milan Martinov) Novi Sad, November 2008.



- Number of Drafts and Final Draft of Study on GHE potential
- Number of Analytical Reports on existing legal and institutional framework
- Number of new laws drafted and adopted on hydro geothermal energy

**Result 4:** Strategic document taking advantage of the potentials and promotion of CHP in Serbia prepared (with indicative targets defined) followed by Regional strategies for specific regions in Serbia.

**Measurable indicators:**

- Outputs of Strategic Analysis of CHP potential and promotion
- National strategic documents on potential and promotion of CHP
- Number of Regional Strategic Documents
- Number of drafted and adopted legislation related to CHP
- Increased number of investor enquires in CHP sector

**Result 5:** Enhanced existing IT system for monitoring and sustainable planning in the energy sector.

**Measurable indicators:**

- Detailed work-plan to establish the Integrated Management Information Systems (IMIS) between the MME and Energy Agencies
- Prepared necessary design of the system, data model, data organization and related activities for establishment IMIS for Energy Sector
- Implemented, tested and fully functional IMIS

**3.4 Activities:**

**Activities related to result 1:**

- Creation of the Kyoto protocol midterm implementation plan in energy sector.
- Public awareness campaign and training on sustainable development.

**Activity related to result 2:**

- Drafting Plan for the implementation EU legislative related to the quality and monitoring the quality of petrol and diesel and reduction the sulphur of certain liquid fuels Directive.

**Activities related to result 3:**

- Analysis of the existing legal and institutional framework for GHE utilization in Serbia, identification of barriers and corrective measures necessary to overcome them.
- Collection, analysis and reinterpretation of the data on the so far implemented geological – hydro geothermal explorations of the GHE potential in the Republic of Serbia.
- Identification of the perspective locations for further hydro geological – hydro geothermal explorations and the preparation of cost assessments for further/detailed hydro geological-hydro geothermal explorations for five most perspective locations.

**Activities related to result 4:**

- Analysis and research of CHP (screening of the current situation, identifying the possible sources of energy and the desirable way of CHP promotion, analysis and proposal of the measures and instruments to promote CHP production.

- Preparation of national and indicative number of the regional strategies for the CHP plants (the exact number of regional strategies should be the output of the first activity, but not less than 5).

#### **Activities related to result 5:**

- Preparation of a detailed work-plan that will establish the Integrated Management Information Systems (IMIS) between the MME and other Energy Agencies.
- Preparation of necessary data models, relational data-sets, data organization and related activities for establishment IMIS for Energy Sector.
- Implementation and testing the functionality of IMIS with integrating data.

The project will be implemented through 3 service contracts: 1 for results 1 and 2; 1 for results 3 and 4; 1 for result 5.

### **3.5 Conditionality and Sequencing:**

The Ministry of Energy and Mining is committed to providing the necessary budgetary and human resources to successfully implement the Kyoto and EC Fuel Directive Plans. These human resource and committed budgetary plans will be in place by mid-2010.

The Ministry of Mining and Energy will provide all available data on GHE and CHP to the contractor at the beginning of the project.

The necessary human resources and budgetary resources will be made available by the Ministry of Mining and Energy to develop the GHE and CHP strategies at the National and Regional Levels. The technical assistance component of the project will assist in finalising the plans and preparing for their implementation.

The legislative gap analysis and preparatory actions have begun will be completed by the start of the project.

The necessary staff and budgetary resources will be made available by the MME to manage and operate the Integrated Management Information System (IMIS). The MME is responsible for working closely on the design of the IMIS with other line ministries and energy agencies. The MME will ensure that there is no repetition of MIS system preparation and design with other administrative institutions.

### **3.6 Linked Activities**

The Norwegian Ministry of Foreign Affairs with its Letter of Approval No. 06/11653 from 26/10/2006 approved the donation to the Ministry of Mining and Energy for the purpose of the realization the project “Norwegian assistance to Serbia for the implementation of the new energy efficiency policy, energy balance in sheet elaboration on the local level and the implementation of the Kyoto Protocol”. The Ministry of Energy and Mining is currently preparing a SQL database within the project named “Establishing, organizing and development of the energy database within the information system of the Ministry” which will present all known renewable resources in Serbia.

Concerned “G2G Project” financed by the Netherlands Government – Biomass Action plan, Serbian Ministry of Mining and Energy in cooperation with Netherlands Government has begun the National Action Plan for biomass use for energy purposes in 2009. The main objective of the project is to give guidance to the Serbian Ministry of Energy and Mining in the implementation of EU directives on renewable energy, with a focus sustainable production and use of biomass including bio fuels. Predicted project duration is 15 months.

The Ministry of Mining and Energy is currently implemented three feasibility studies financed by US TDA grants:

- Feasibility study for the Belgrade District Heating Plant project (Combine Cycle Gas Turbine CHP plant) in Novi Belgrade
- Feasibility study for the 5 MW biomass combined heat and power plant project in Kraljevo
- Feasibility study for the city of Nis gas-fuelled combined heat and power plant project in the City of Nis

### **3.7 Lessons Learned**

One of the principal lessons learned from past energy sector projects is the need for close consultation with multiple stakeholders to ensure that they develop ‘ownership’ of capacity building and reform projects.

Consensus amongst these stakeholders is particularly vital given the high capital intensity of investments required in the sector, and thus difficulties involved in ensuring that such investments are properly prioritized and the corresponding economic and social benefits are realized.

The MEM must have the necessary human resources and budgetary commitments in place in order to action institutional building and strategic development support. A key lesson is that strategies do not implement themselves and the MEM has to commit the necessary resources and political support.

**4. Indicative Budget (amounts in EUR)**

Implementation of energy component of the national strategy for sustainable development			TOTAL EXP.RE	SOURCES OF FUNDING								
				IPA COMMUNITY CONTRIBUTION		NATIONAL CONTRIBUTION					PRIVATE CONTRIBUTION	
ACTIVITIES	IB (1)	INV (1)	EUR (a) = (b) + (c) + (d)	EUR (b)	% (2)	Total EUR (c) = (x) + (y) + (z)	% (2)	Central EUR (x)	Regional/ Local EUR (y)	IFIs EUR (z)	EUR (d)	% (2)
Contract 1 (results 1 & 2 – Service)	X		650.000	650.000	100%							–
Contract 2 (results 3 & 4 –Service)	X		1.500.000	1.500.000	100%							
Contract 3 (result 5 – Service)	X		350.000	350.000	100%							
TOTAL IB			2.500.000	2.500.000	100%							
TOTAL INV												
<b>TOTAL PROJECT</b>			<b>2.500.000</b>	<b>2.500.000</b>	<b>100%</b>							

Amounts net of VAT, (1) In the Activity row use “X” to identify whether IB or INV; (2) Expressed in % of the **Total** Expenditure (column (a))

## 5. Indicative Implementation Schedule (periods broken down per quarter)

Contracts	Start of Tendering	Signature of contract	Project Completion
Contract 1 (Service for results 1, 2 )	N + 1 Q	N + 3 Q	N + 8 Q
Contract 2 (Service for results 3 & 4)	N + 1Q	N + 3 Q	N + 9 Q
Contract 3 (Service 5)	N + 3Q	N + 5 Q	N + 9 Q

## 6. Cross cutting issues

### 6.1 Equal Opportunity

Wider use of Renewable Energy Sources (RES) in Serbian energy sectors, would contribute to its higher competitiveness at the local and the world market, which should have an impact on a better employment rate for both genders. No gender discrimination exists in Serbia. There are no difference between gender beneficiaries regarding the implementation and the results of this project. The project will take into account the need for gender mainstreaming to be properly embedded in implementing the project.

### 6.2 Environment

The implementation of RES projects an environmental benefit. Increasing the utilization of RES in the energy sectors, through fuel switching, is directly related to reduction of CO2 emission and emission of other air pollutants, as well as for reduction of water and soil pollution. The Energy Community Treaty includes the requirement that the Acquis on the Environment is complied with. Technical assistance to be provided to the sector will include assistance in the area of developing plans for the implementation of the Environment Acquis based on the timetable set out in Annex II of the Treaty.

### 6.3 Minorities

There are no special requirements and special role regarding minority issues, although the provision of RES will benefit those living in rural areas at the extremities of the country.

## ANNEX I: LOGICAL FRAMEWORK MATRIX

<b>LOGFRAME PLANNING MATRIX FOR PROJECT FICHE</b>		Programme name and number:	
<b>IMPLEMENTATION OF ENERGY COMPONENT OF THE NATIONAL STRATEGY FOR SUSTAINABLE DEVELOPMENT</b>		Contracting period expires 2 years after signature of the Financing Agreement	Disbursement period expires 5 years after signature of the Financing Agreement
		Total budget : 2.5 M EUR	IPA budget:2.5 M EUR
<b>Overall objective</b>	<b>Objectively verifiable indicators</b>	<b>Sources of Verification</b>	
Contribute to sustainable development in Serbia by enhancing capacities in the energy sector to efficiently use resources according to EU standards.	Increase of the renewable resources in the energy production Decreased specific fossil fuel consumption	Statistical Office of Serbia Energy balances of the Republic of Serbia EC progress report	
<b>Project purpose</b>	<b>Objectively verifiable indicators</b>	<b>Sources of verification</b>	<b>Assumptions</b>
Building capacity in the energy sector which will lead to the rational use of conventional fuels and increased use of renewable energy sources	Set of measures, policy papers and legal instruments in the sectors in energy	Official Journal of the Republic of Serbia Website of the Ministry of Mining and Energy Publications of the Ministry of Mining and Energy Project Reports	Sustainable development concept used in the Government policy and decisions Continuation of the implementation of the EU agenda in Serbia (Energy Treaty , SAA, European Partnership)

<b>Results</b>	<b>Objectively verifiable indicators</b>	<b>Sources of Verification</b>	<b>Assumptions</b>
1. Kyoto protocol midterm implementation plan in energy sector prepared and public awareness campaign on the importance of sustainable development carried out.	<p><b>Indicators related to result 1</b></p> <p>Drafts and final copy of Kyoto Mid-Term Implementation Plan</p> <p>Number of Consultations with Stakeholders</p> <p>Number of Training modules provided in Plan Implementation</p> <p>Number of Publicity Events</p>	<p>Official Journal of the Republic of Serbia</p> <p>Project reports</p> <p>Government decisions</p> <p>Website of the Ministry of Mining and Energy</p> <p>Reports generated by the Ministry Information system</p>	<p>Readiness of policy and decision makers in Ministry and Public enterprises to implement reforms in energy sector according adopted Strategies and planned documents.</p>
2. Plan for implementation of EU legislative related to quality and the monitoring of quality of petrol and diesel and reduction the sulphur of certain liquid fuels Directive prepared	<p><b>Indicators related to result 2</b></p> <p>Number of Draft Plans and final plan.</p> <p>Number of Training Modules Delivered and Staff Trained.</p>	<p>Sectors statistics</p> <p>Various Reports generated by the Agencies/Ministry Information system</p> <p>Clients feedback</p>	
3. Prepared analysis of the existing legal and institutional framework for GHE utilization and completed Study on GHE potential in Serbia	<p><b>Indicators related to result 3</b></p> <p>Number of Drafts and Final Draft of Study on GHE potential.</p> <p>Number of Analytical Reports on existing legal and institutional framework.</p> <p>Number of new laws drafted and adopted on hydro geothermal energy.</p>		
4. Strategic document taking advantage of the potentials and promotion of CHP in Serbia prepared (with indicative targets defined) followed by Regional strategies for specific regions in Serbia.	<p><b>Indicators related to result 4</b></p> <p>Outputs of Strategic Analysis of CHP potential and promotion.</p> <p>National strategic documents on potential and promotion of CHP.</p>		

Number of Regional Strategic Documents.

Number of drafted and adopted legislation related to CHP.

Results	Objectively verifiable indicators	Sources of Verification	Assumptions
	sector.		
5. Enhanced existing IT system for monitoring and sustainable planning in the energy sector.	<p><b>Indicators related to result 5</b></p> <p>Detailed work-plan to establish the Integrated Management Information Systems (IMIS) between the MME and Energy Agencies</p> <p>Prepared necessary data model, data organization and related activities for establishment IMIS for Energy Sector</p> <p>Implemented, tested and fully functional IMIS</p>		
Activities	Means & Costs	Assumptions	
<p><b>Activities related to result 1:</b> Creation of the Kyoto protocol midterm implementation plan in sectors of energy; Public awareness campaign and training on sustainable development:</p> <p><b>Activity related to result 2:</b> Drafting Plan for the implementation EU legislative related to the quality and monitoring the quality of petrol and diesel and reduction the sulphur of certain liquid fuels Directive.</p> <p><b>Activities related to result 3:</b> Analysis of the existing legal and institutional framework for GHE utilization in Serbia, identification of barriers and corrective measures necessary to overcome them. Collection, analysis and reinterpretation of the data on the so far implemented geological – hydro geothermal explorations of the GHE potential in the Republic of Serbia Identification of the perspective locations for further hydro geological – hydro geothermal explorations and the preparation of cost assessments for further/detailed hydro geological-hydro geothermal explorations for five most perspective locations.</p> <p><b>Activities related to result 4:</b> Analysis and research of CHP (screening of the current situation, identifying the possible sources of energy and the desirable way of CHP promotion, analysis and proposal of the measures and instruments to promote CHP production Preparation of national and indicative number of the regional strategies for the CHP plants (the exact number of regional strategies should be the output of the first activity, but not less than 5.)</p> <p><b>Activities related to result 5:</b> Preparation of a detailed work-plan that will establish the Integrated Management Information Systems (IMIS) between the MME and other Energy Agencies</p>	<p>Activities 1 &amp; 2: Fee based Service Contract : 0.65 M€</p> <p>Activities 3 &amp; 4: Global price Service Contract: 1.5 M€</p> <p>Activity 5: fee based Service Contract: 0.35 M€</p>	<p>Sufficient number of staff in the Ministry</p> <p>Readiness of policy and decision makers to adopt necessary legislative framework</p> <p>Effective inter-institutional relationships</p> <p>Effective information and data sharing</p> <p>High quality consultants engaged for project components</p>	



<b>Results</b>	<b>Objectively verifiable indicators</b>	<b>Sources of Verification</b>	<b>Assumptions</b>
Preparation of necessary data models, relational data-sets, data organization and related activities for establishment IMIS for Energy Sector  Implementation and testing the functionality of IMIS with integrating data			

Pre-conditions: Creation of Plan for implementation EU legislative related to the quality of petrol and diesel and reduction the sulphur of certain liquid fuels Directive

**ANNEX II: AMOUNTS (IN million EUR) CONTRACTED AND DISBURSED BY QUARTER FOR THE PROJECT**

<b>Contracted</b>	<b>N+3Q</b>	<b>N+4Q</b>	<b>N+5Q</b>	<b>N+6Q</b>	<b>N+7Q</b>	<b>N+8Q</b>	<b>N+9Q</b>	<b>Total</b>
Contract 1 (Results 1 & 2 - Service)	0.65							0.65
Contract 2 (Results 3 & 4 Service)	1.50							1.50
Contract 3 (Result 5 Service)			0.35					0.35
<b>Cumulated</b>	<b>2.15</b>	<b>2.15</b>	<b>2.50</b>	<b>2.50</b>	<b>2.50</b>	<b>2.50</b>	<b>2.50</b>	<b>2.50</b>
<b>Disbursed</b>								
Contract 1 (Results 1 & 2 - Service)	0.19		0.19		0.20	0.07		0.65
Contract 2 (Results 3 & 4 Service)	0.90						0.60	1.50
Contract 3 (Result 5 Service)			0.10		0.21		0.04	0.35
<b>Cumulated</b>	<b>1.09</b>	<b>1.09</b>	<b>1.38</b>	<b>1.38</b>	<b>1.79</b>	<b>1.86</b>	<b>2.50</b>	<b>2.50</b>

## ANNEX III- DESCRIPTION OF INSTITUTIONAL FRAMEWORK

The Ministry of Mining and Energy is organized in the following Sectors and Departments:

- Sector for General Energy, with the tasks: to define energy policy and energy strategy, to create energy balance sheet, to modernize of district heating system, to create framework for increased energy efficiency in all energy consumption sectors, to monitor and stimulate activities of Serbian energy efficiency agency, activities in the field of legislation and regulation,
- Sector for Electric Power, with the tasks: supervising power balance, supervising companies in power sector, power development research, optimal exploitation of power resources, creating the legal framework for the facilitation of the investments in the power sector, inspection monitoring in the power sector,
- Sector for Oil and Gas , with the following tasks: oil and gas strategic issues, oil and gas legislation, the monitoring and regulation of oil derivatives prices, oil and gas market analyses, supervising oil and gas energy balance, pressurized equipment inspection, the provision of the conditions for successful functioning of the companies in the oil and gas industry, issuing energy permits, supervision and development of national oil and gas pipelines and international connections, technical-technological and economic issues regarding the development of oil and gas industry,
- Sector for Mining and Geology, with the tasks: to supervise exploration and exploitation, to confirm mineral reserves, to maintain exploration and exploitation cadastres, to define the policy of mineral resources exploitation, to attract and facilitate foreign and domestic investments in exploration and mining in Serbia, to promote mining and improve its position within Serbian economy,
- Sector for Renewable Energy, with the task of creating regulatory framework and incentive measures for the use of renewable energy sources and energy licenses issuing for the building of facilities using renewable energy sources,
- Sector for public utilities, with the tasks of restructuring public utilities in energy sector,
- Sector for international cooperation, which is in charge for the activities regarding the process of accession with EU and international cooperation.
- Department for Sustainable Development in the Mining and Energy area is responsible for addressing the environmental issues in the Mining and Energy Policies, for monitoring the enforcement of the environmental protection measures in the Energy and Mining area, implementation of the Kyoto protocol in the part relevant to the energy and mining sector.

One person from each relevant sector will be involved in the project activities.

Upon the approval of the proposed project fiche, multisectoral working group will be formed within the Ministry of Mining and Energy, which will monitor further project activities. Working group will consist of the employees from the following department and sectors:

- Sector for Electric Energy - coordination of the working group
- Sector for General Energy - monitoring of the project activities regarding CHP
- Sector for Renewable Energy – monitoring the project activities regarding GHE

**Department for Sustainable Energy in the Mining and Energy Area** – monitoring project activities regarding Kyoto protocol midterm plan, public awareness campaign on sustainable development and creation of Plan for implementation EU legislative related to the quality of petrol and diesel and reduction the sulphur of certain liquid fuels Directive

## ANNEX IV- REFERENCE TO LAWS, REGULATION AND STRATEGIC FRAMEWORK

**The European partnership** sets out the short-term priorities (section: sectoral policies, subsection: energy) such as:

- Fulfil the obligations arising from the Energy Community Treaty as regards the full implementation of the *Acquis* on the internal gas and electricity market and on cross border exchanges in electricity.
- Strengthen the administrative capacity within the relevant ministries.

**The European partnership** determines short term priorities (section: sectoral policies, subsection: *environment*) as following:

- Accelerate approximation of legislation and standards to the EU *Acquis*.
- Implement the adopted legislation, notably on environmental impact assessment.

Start implementing the Kyoto Protocol.

**The European partnership** sets out the medium-term priorities (section: *sectoral policies*, subsection: *energy*) such as:

- Adopt and implement a long-term strategy for an environmentally sustainable energy policy;
- Continue to implement regional and international commitments in this area with a view to establishing a competitive regional energy market.

**The European partnership** determines medium term priorities (section: *sectoral policies*, subsection: *environment*) as following:

- Ensure full implementation and enforcement of legislation approximated to the EU legislation.
- Implement the relevant international conventions and the Kyoto Protocol.

**Stabilization and Association Agreement (Title VIII, cooperation policies, Article 109 – Energy)** says that Cooperation shall focus on priority areas related to the Community *Acquis* in the field of energy. It shall be based on the Treaty establishing the Energy Community, and it shall be developed with a view to the gradual integration of Serbia into Europe's energy markets. Cooperation may include in particular:

- a) the formulation and planning of energy policy, including modernization of infrastructure, improvement and diversification of supply and improvement of access to the energy market, including facilitation of transit, transmission and distribution and improvement of energy interconnections of regional importance with neighbouring countries;
- b) the promotion of energy saving, energy efficiency, renewable energy and studying the environmental impact of energy production and consumption;
- c) the formulation of framework conditions for restructuring of energy companies and cooperation between undertakings in this sector

**Stabilization and Association Agreement (Title VIII, subtitle: Cooperation policies, Article 109 –Energy)**

Cooperation shall focus on priority areas related to the Community *Acquis* in the field of energy. It shall be based on the Treaty establishing the Energy Community, and it shall be

developed with a view to the gradual integration of Serbia into Europe's energy markets. Cooperation may include in particular:

- a) the formulation and planning of energy policy, including modernisation of infrastructure, improvement and diversification of supply and improvement of access to the energy market, including facilitation of transit, transmission and distribution and improvement of energy interconnections of regional importance with neighbouring countries;
- b) the promotion of energy saving, energy efficiency, renewable energy and studying the environmental impact of energy production and consumption;
- c) the formulation of framework conditions for restructuring of energy companies and cooperation between undertakings in this sector.

**Stabilization and Association Agreement (Title VIII, subtitle: Cooperation policies, Article 111 –Environment)**

The Parties shall develop and strengthen their cooperation in the environmental field with the vital task of halting further degradation and start improving the environmental situation with the aim of sustainable development.

The parties shall, in particular, establish cooperation with the aim of strengthening administrative structures and procedures to ensure strategic planning of environment issues and coordination between relevant actors and shall focus on the alignment of Serbia's legislation to the Community *Acquis*. Cooperation could also centre on the development of strategies to significantly reduce local, regional and trans-boundary air and water pollution, to establish a framework for efficient, clean, sustainable and renewable production and consumption of energy, and to execute environmental impact assessment and strategic environmental assessment. Special attention shall be paid to the implementation of the Kyoto Protocol.

**National Program for EU Integration– NPI**, (refer to 3.15. Energy Sector p.443-456) highlights current legislative and institutional framework in the energy sector including energy efficiency, short-term (2008-2009) and Middle-term priorities (period 2010-2012) in legislation and institutional framework, recruitment and financial needs, self-funds, and foreign assistance funds for the realization of current projects in 2008-2009,

**In the MIPD 2009-2011** (Section 2.3.3- Ability to assume obligations of membership, 2.3.3.1 Objectives and choices, point 5. "Support the development and implementation of strategies and policies in order to establish sectoral policies and a regulatory framework compatible with European standards"

**Energy:** Support to meet the requirements of the Energy Community Treaty, relevant Community Directives and regional market obligations; compliance of legislation with the '*Acquis*'. *Attention should be also paid to energy efficiency, renewable energy, radiation protection.*

This project falls within the framework of national, regional and Energy Community Treaty provisions. The strategic actions in the energy sector are defined in three documents: Energy Law, Strategy of Energy Sector Development and Strategy Implementation Programme.

Article 4 of **the Energy Law** ("The Official Gazette RS", No. 84/2004) states that the "Energy Policy of Republic of Serbia is enforced through the **Energy Sector Development Strategy**. Measures and activities to reach goals of the Strategy are elaborated in more details in the Programme for Implementation of Energy Sector Development Strategy 2007-2012

Programme comprises of 15 modules and was adopted by the Government of Serbia in January 2007.

**The first - basic Priority of continuous technological modernization** of the existing energy facilities/systems/sources, in the following sectors: oil, natural gas, coal including strip mining and underground mining, power sector, with production facilities – thermal power plants, hydropower plants and thermal power plants- district heating companies and transmission system i.e. distribution systems, and thermal energy sector – district heating companies and industrial power plants.

- **The second - directed Priority of economical use of quality energy products** and increase in the energy efficiency in the production, distribution and utilization of energy by end consumers of energy-related services.
- **The third - special Priority of use of NRES** (new renewable energy sources) and new, more energy efficient and environmentally acceptable energy technologies and installations/equipment for energy utilization.

Further relevant legislation and strategic documents are listed in Annex 4.

The **National Strategy of Economic Development of Serbia (2006-2012)** has the following objectives and measures/ activities to achieve these objectives (Section 5.4 Infrastructure, 5.4.1 Energy and Mining):

- Harmonize the practice and legislation with the EU (Implement the provisions of the Energy Community Treaty; Further harmonize the legal framework with EU Directives)
- Legislative activities (Harmonize the relevant regulations with the EU; Establish a legal framework and identify incentives for better use of renewable energy sources).

### **The national Strategy for Sustainable Development**

In May 2008 Serbian Government adopted National Strategy for Sustainable Development, which defines key priorities for sustainable development of Serbia, followed by the Action plan for implementation of Sustainable development Strategy, which sets institutional framework and the specific measures and activities for realization of the objectives envisaged by the Strategy.

Sustainable Development objectives in the energy sector, foreseen by the Strategy are:

- Increase of energy efficiency,
- Wider use of renewable energy sources,
- Rational use of natural resources,
- Implementation of the international conventions, protocols and treaties regarding the climate change, air protection, etc
- Harmonization of national legislative with EU regulations,
- Raising the public awareness on sustainable development in the energy sector,

**ANNEX V – DETAILS PER EU FUNDED CONTRACT**

<b>Modalities of implementation of project</b>	
<b>Results</b>	<b>Type of Contract</b>
<p>1. Kyoto protocol midterm implementation plan in energy and mining sectors prepared and public awareness campaign on the importance of sustainable development carried out.</p> <p>2. Plan for implementation of EU legislative related to the quality and the monitoring the quality of petrol and diesel and reduction the sulphur of certain liquid fuels Directive prepared.</p>	<p>Fee-based Service Contract 650.000 EUR</p>
<p>3. Prepared analysis of the existing legal and institutional framework for GHE utilization and completed Study on GHE potential in Serbia</p> <p>4. Strategic document taking advantage of the potentials and promotion of CHP in Serbia prepared (with indicative targets defined) followed by Regional strategies for specific regions in Serbia</p>	<p>Global price Service Contract 1.500.000 EUR</p>
<p>5. Enhanced existing IT system for monitoring and sustainable planning in the energy sector.</p>	<p>Fee-based Service Contract 350.000 EUR</p>