



**Bucharest  
Municipality**



**Primaria Municipiului  
Bucuresti**

**Contract 4144 / 31.12.07**

**Contract 4144 / 31.12.07**

**Energy Strategy for Bucharest  
Municipality**

**Strategia Energetica a  
Municipiului Bucuresti**

**Phase III: Strategy Report**

**Etapa a III-a: Strategia**

**Technical Note 28.08.2009**

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**Observation from the  
Municipal Energetic  
Committee**

**Observatii din partea Comitetului  
Energetic Municipal**

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## 1 INTRODUCTION

The Consultant has submitted the Draft Final Report for the Energy Strategy. The Strategy was presented for the Technical Committee on 20.08.2009.

The Technical Committee has submitted a number of observations during the meeting of in notes after the meeting. The note repeats the observations and provides the answers from the Consultant.

## 1 INTRODUCERE

Consultantul a transmis varianta initiala a Raportului Final pentru Strategia Energetica. Strategia a fost prezentata Comitetului Energetic Municipal in data de 20.08.2009.

Comitetul Energetic Municipal in timpul intalnirii a formulat o serie de observatii sau a transmis note scrise ulterior intalnirii. Consultantul a raspuns la notele scrise care s-au regasit si in observatiile formulate.

## 2 OBSERVATIONS AND ANSWERS

### 2.1 Prof. Dr. George Darie

#### Observation 2.1.1:

The strategy is based on the assumption that in 2020 the production of thermal energy should neutral from CO<sub>2</sub> emissions. This assumption has led inevitably to establish technical solutions to produce thermal energy. I believe that this assumption is too demanding, especially for a city as size of Bucharest

#### Answer 2.1.1:

The overall goals, including the goal of obtaining CO<sub>2</sub> neutrality for heating by 2020, for the Energy Strategy was proposed by the Consultant in Phase II and presented in the Report “Clarification of Goals”. The goals are formulated as recommendations in the “Recommendation Report” completing Phase II.

The goal of CO<sub>2</sub> neutrality by 2020 is established because it is feasible and the measures selected for obtaining the goal are fully in-line with EU-directives as implemented in Romania in the National Energy Strategy. Delay of 5 or 10 years in construction of solar heating systems, waste-to-energy, local peak-load production and modernisation of the transmission system will result in addition production costs in the level of 2 BEUR and 4 BEUR, respectively (See technical note regarding impact of delayed implementation).

#### Observation 2.1.2:

The strategy involves a radical change in terms of heat supply, assuming an extremely high volume of investments and construction activity and assembly. It is hard to believe that this will be achieved only in 11 years. I consider that one of the main obstacles will be the acceptance by the population of the new technologies.

#### Answer 2.1.2:

The consultant agrees that providing the necessary investments (more than 3,000 MEUR) seems difficult and out-of-reach for the Municipality of Bucharest.

To overcome this problem we propose private investment based on production and operation

## 2 OBSERVATII SI RASPUNSURI

### 2.1 Prof. Dr. George Darie

#### Observatia 2.1.1

Strategia are la baza ipoteza ca in anul 2020 emisiile de CO<sub>2</sub> rezultate din producerea energiei termice trebuie sa fie nule. Aceasta ipoteza a condus in mod inevitabil la stabilirea solutiilor tehnice de producere a energiei termice. Consider ca aceasta ipoteza este mult prea pretentioasa indeosebi pentru un oras de talia Bucurestiului.

#### Raspuns 2.1.1

Obiectivele generale ale Strategiei Energetice, inclusiv obiectivul pentru atingerea neutralitatii dpdv al emisiilor de CO<sub>2</sub> in 2020, au fost propuse de Consultant in Etapa a II a si este prezentat in raportul “Clarificarea Obiectivelor”. Obiectivele au fost formulate ca si recomandari in raportul “Recomandari”, care completeaza Etapa all-a.

Obiectivul privind obtinerea neutralitatii dpdv al emisiilor de CO<sub>2</sub> in 2020 a fost stabilit ca urmare a faptului ca este fezabil, iar masurile selectate pentru atingerea acestuia sunt in completa conformitate cu Directivile UE, asa cum sunt implementate in Romania prin Strategia Energetica Nationala. Intarzieri de 5 sau 10 ani in construirea sistemelor de incalzire solara, facilitati de incinerare, cazane pt acoperirea varfului de consum si modernizarea sistemului de transport vor genera costuri de productie la nivelul a 2 miliarde Euro, respectiv 4 miliarde Euro(a se vedea nota tehnica referitoare la impactul generat de intarzierea implementarii).

#### Observatia 2.1.2:

Strategia implica o schimbare radicala a modului de acoperire a cererii de caldura, presupunand un volum extrem de ridicat de activitati de constructie si montaj. Este greu de crezut ca acest lucru va fi realizat in doar 11 ani. Una dintre principalele piedici o consider acceptarea de catre populatie a noilor tehnologii.

#### Raspuns 2.1.2:

Consultantul este de aceeaasi parere ca asigurarea necesarului de investitii(mai mult de 3 miliarde Euro) este dificila si complet peste posibilitatile PMB.

In vederea rezolvarii acestei situatii noi propunem investitiile private pe baza concesiunilor pentru

concessions.

producere si distributie.

**Observation 2.1.3:**

The strategy involves removing the current super-centralized system of heat supply. Adopting the strategy will influence the investments in the transmission system.

**Observatia 2.1.3:**

Strategia presupune eliminarea actualului sistem super-centralizat de alimentare cu caldura. Adoptarea strategiei va influenta in mod hotarator investitiile in magistralele de transport a apei fierbinti.

**Answer 2.1.3:**

Yes. The transmission system will over time be reduced from the current capacity of about 5,000 MJ/sec to about 400 MJ/sec as the only centralised production in the future will be the waste-to-energy facilities with the decentralised CHP units as back-up.

**Raspuns 2.1.3:**

Da. Sistemul de transport se va reduce in timp, de la capacitatea actuala de 5,000 MJ/sec la aproximativ 400 MJ/sec, in conditiile in care producerea centralizata se va baza doar pe facilitatile de incinerare cu unitatile de cogenerare centralizate ca si rezerva.

The proposed strategy for changing the transmission system: decommission unnecessary pipes and replace other when worn-out. Fully changing the transmission system is not expected completed before 2025 or even later.

Strategia propusa pentru modificarea sistemului de transport consta in: dezafectarea conductelor care nu se vor mai utiliza si inlocuirea altora cand sunt depreciate. Nu se asteapta ca reconstructia completa a sistemului de transport sa aiba loc inainte de anul 2025.

**Observation 2.1.4:**

The strategy involves the withdrawal of operating and decommissioning in 2020 of all CHP functioning on the basis of fossil fuels. Also it is proposed to achieve decentralized cogeneration units, small capacity. These measures will influence the balance of electricity production in the area of Bucharest. Strategy should consider how is influenced the system of transmission and distribution of electricity, including the security of the supply of electricity to the city of Bucharest. Similar problems could arise in case of transmission networks and distribution of natural gas.

**Observatia 2.1.4:**

Strategia implica retragerea din exploatare si dezafectarea pana in 2020 a tuturor CET care functioneaza pe baza de combustibili fosili. Deasemeni se propune realizarea unor unitati de cogenerare descentralizate, de mica capacitate. Aceste masuri vor influenta balanta producerii de energie electrica in zona Bucuresti. Strategia ar trebui sa analizeze modul in care este influentat sistemul de transport si distributie a energiei electrice, inclusiv securitatea in alimentarea cu energie electrica a orasului Bucuresti. Probleme similare ar putea aparea si in cazul retelelor de transport si distributie a gazului natural

**Answer 2.1.4:**

Yes and No. The electricity generation from cogeneration will be increased. (Decentralised CHP in the heating period and waste-to-energy in the off-heating period). If the electricity side decides to maintain the condense production is not the problem of the Municipality of Bucharest.

**Raspuns 2.1.4:**

Da si nu. Producerea de electricitate prin cogenerare va creste. (Unitati de cogenerare descentralizate in perioada de incalzire si facilitati de incinerare a deseurilor in afara perioadei de incalzire. Daca pe partea de productie a electricitatii se decide sa se mentina unitatile in condensare, nu este problema Primariei Municipiului Bucuresti.

The electricity side can continue operation in condense mode of the necessary electricity or find a cheaper solution in terms of addition power lines to the Bucharest area or others. The power sector shall be welcome to supply heat to the district heating system in competition with solar energy and waste-to-energy. What the electricity side decides to do is not the responsibility of Bucharest Municipality.

Partea de productie a electricitatii poate sa continue sa opereze in condensatie pentru producerea cantitatii de electricitate necesara sau sa gaseasca solutii ieftine ca de exemplu construirea unor linii suplimentare de alimentare a zonei Bucurestiului sau alte solutii. Sectorul de productie al electricitatii este binevenit sa furnizeze energie termica in sistemul de incalzire centralizat in competitie cu energia solara si facilitatile de incinerare a deseurilor.

Primaria Municipiului Bucuresti nu este responsabila pentru deciziile luate de catre sectorul de productie al electricitatii.

#### **Observation 2.1.5:**

Covering the heat requirement is based mainly on use of solar energy. In terms of days without sun and low temperatures outside, the other sources of heat will be sufficient to cover heat demand? A solution could be to maintain current capacity based on fossil fuels?

#### **Answer 2.1.5:**

Solar energy is assumed covering the demand near to 100% in the summer period while the production will be insignificant in the coldest periods of the winter. Thus a production on fossil fuels on heat-only is expected also after 2020.

However, after 2020 we assume that bio-fuel will be cheaper than natural gas or heating oil when energy/environmental taxes as requested by the EU are fully implemented in Romania and when take-or-pay conditions for natural gas are introduced.

#### **Observation 2.1.6:**

The concept "Solar Energy for all" is difficult to put into practice in the buildings owned by private owners. Acceptance of installing solar panels on these buildings cannot be a condition for connection to the heating system.

#### **Answer 2.1.6:**

It is a political problem.

Can it be accepted that the Government of Romania only support the population living on the "south-side" with public funding?

It should not be difficult to understand that if public funding is involved in construction of solar heating system the benefit of the systems must be for everybody.

#### **Observatia 2.1.5:**

Acoperirea necesarului de caldura se bazeaza in mare masura pe utilizarea energiei solare. In conditiile unor zile neinsorite si a unor temperaturi exterioare scazute, celelalte surse de caldura vor fi suficiente pentru acoperirea cererii de caldura? O solutie ar putea fi mentinerea unor capacitati actuale bazate pe combustibili fosili?

#### **Raspuns 2.1.5:**

Se presupune ca energia solara va putea sa acopere aproape in intregime necesarul de energie termica in perioada de vara, in timp ce productia va fi nesemnificativa in cele mai reci perioade iarna. Totusi se asteapta si dupa anul 2020 sa existe productie de energie termica utilizand combustibili fosili.

Astfel, dupa 2020 se preconizeaza ca bio-combustibilul va deveni mai ieftin decat gazele naturale sau produsele petroliere, datorita introducerii taxelor pe energie/mediu ca urmare a conformarii Romaniei cu cerintele UE, in acelar caz, utilizarea gazelor naturale va fi taxata suplimentar.

#### **Observatia 2.1.6:**

Conceptul "Energie solara pentru fiecare" este dificil de pus in practica in cazul cladirilor detinute de proprietari privati. Acceptarea montarii de panouri solare pe aceste cladiri nu poate reprezenta o conditie de conectare la sistemul de termoficare.

#### **Raspuns 2.1.6:**

Aceasta este o problema politica.

Este acceptat ca Guvernul Romaniei sa subventioneze din fonduri publice doar acea parte a populatiei care are apartamente cu "vedere spre sud"?

Nu este foarte greu de inteles ca atunci cand fondurile publice sunt utilizate pentru construirea de sisteme de incalzire solara, beneficiile rezultate trebuie sa fie pentru fiecare.

## **2.2 Prof. Dr. Virgil Musatescu**

#### **Observation 2.2.1:**

The strategy is addressed only to restricted areas: supply of heat and hot tap water and energy used for public transport in the city. Are excluded the urban

## **2.2 Prof. Dr. Virgil Musatescu**

#### **Observatia 2.2.1:**

Domaniul abordat este restrans doar la alimentarea cu caldura si apa calda menajera si energia utilizata pentru transportul public in interiorul orasului. Sunt

problems - energy and environment, as well as other services with impact on energy consumption: water - sewage, household waste collection, public lighting (let's not forget the mandatory replacement of sources with incandescent lighting up to 2012)

excluse problemele legate de urbanism – energie si mediu, ca si alte servicii cu impact asupra consumului energetic : apa - canal , colectare deseuri menajere, iluminatul stradal (sa nu uitam obligativitatea de inlocuire a surselor de iluminat cu incandescenta pana in 2012)

#### Answer 2.2.1:

The Energy Strategy focuses on the areas of energy consumption and production where the Municipality of Bucharest is responsible.

The Consultant agrees that electricity consumption in areas such as public transport public lightning is missing. This will be corrected in the final version.

#### Raspuns 2.2.1:

Strategia Energetica se concentraza pe domenii ale consumului si producerii de energie care intra in sfera de competenta legala a Primariei Municipiului Bucuresti.

Consultantul este de acord ca lipsesc sectiunile referitor la consumul de electricitate pentru transportul in comun ca si pentru iluminatul public.

#### Observation 2.2.2:

I agree with the vision to reduce consumption in Bucharest but I have big doubts about the way in which - primarily from a legal point of view - may be imposed with administrative resources the centralized heating system, as a single supply means.

#### Observatia 2.2.2:

Sunt de acord cu viziunea de reducere a consumului la nivelul orasului dar am mari indoieli in legatura cu modalitatea in care – in primul rand din punct de vedere legal – se va putea impune prin mijloace administrative sistemul de productie si distributie centralizata a caldurii drept unic sistem de alimentare cu caldura

#### Answer 2.2.2:

The Consultant has assumed about 5-10% of the heat supply covered from individual CO<sub>2</sub> neutral sources. The legislation is in place for mandatory connection to the district heating system but some conditions must be fulfilled before mandatory connection can be political acceptable, we assume:

- District heating must have competitive tariffs (lower price) than individual heating.
- The comfort level must be at least as for individual natural gas heating (heat and hot tap water on demand).
- Security of supply must be at least at the same level as gas supply.

#### Raspuns 2.2.2:

Consultantul a luat in considerare ca intre 5-10% din energia termica furnizata va fi acoperita de producerea in surse individuale, neutre din punct de vedere al emisiilor de CO<sub>2</sub>. Legislatia in vigoare include prevederi pentru obligativitatea conectarii la sistemul de incalzire centralizat, dar inainte ca aceasta obligativitate sa poata fi acceptabila din punct de vedere politic, consideram ca trebuie indeplinite anumite conditii:

- Incalzirea centralizata trebuie sa aiba tarife competitive (preturi mai scazute) decat incalzirea din surse individuale.
- Nivelul de confort trebuie sa fie cel putin egal cu cel cu cel asigurat de surse individuale pe gaz natural (caldura si acc la cerere)
- Siguranta furnizarii trebuie sa fie cel putin la acelasi nivel ca cel realizat prin sursele utilizand gaze naturale.

### 2.3 Prof. Dr. Ing. Aureliu Leca

#### Observation 2.3.1:

According to the provisions of the strategy will be reduced the heat demand by 45% from a specific consumption 180 kWh/mp/year) (figures are known for Romania is 290 kWh/mp/year) Under the rules of EU ,100 kWh/m<sup>2</sup>/year for existing buildings and 50 kWh /

### 2.3 Prof. Dr. Ing. Aureliu Leca

#### Observatia 2.3.1:

Conform strategiei se va realiza reducerea cererii de caldura cu 45% de la un consum specific de 180kWh / m<sup>2</sup>/an (cifrele care se cunosc pentru Romania sunt de 290 kWh/m<sup>2</sup>/an) La normele UE de 100 kWh/mp/an pentru cladirile existente si 50



m<sup>2</sup>/year for new buildings, will be necessary a considerable financing. The strategy doesn't give a way to finance the thermal rehabilitation of buildings.

kWh/mp/an pentru cladirile noi este necesara o finantare considerabila. Nu rezulta modul de finantare a reabilitarii termice a cladirilor.

#### **Answer 2.3.1:**

The specific consumption of 180 kWh/m<sup>2</sup>/year assumes that the already mandatory energy conservation measures as energy metering and installation of thermostatic valves on the radiators are implemented.

As the buildings are private owned, it is not the problem of Bucharest Municipality to provide financing. However, a energy rehabilitation scheme supported by Romanian Government, Sectors Municipalities (in case of Bucharest) and owners association is in force but the Consultant finds in appropriate to allocate at least some of the income from energy/environmental taxation (must be introduced in Romania from 2011 according to Treaty with the EU) for energy conservation projects as it is seen in most other EU countries.

#### **Raspuns 2.3.1:**

Consumul specific de 180 kWh/m<sup>2</sup>/an ia considerare faptul ca masurile de conservarea energiei obligatorii, precum contorizarea si instalarea vanelor termostatare la radiatoare au fost implementate.

In conditiile in care cladirile sunt proprietate privata, finantarea nu este o problema a Primariei Municipiului Bucuresti. In prezent este in vigoare o schema de finantare suportata de catre Guvern si Primariile de Sector(in cazul Municipiului Bucuresti), dar avand in vedere ca incepand cu anul 2011, in conformitate cu Tratatul de Aderare, Romania va trebui sa introduca un sistem de taxare pe energie/mediu, Consultantul considera ca macar o parte din aceste fonduri se vor aloca pentru proiecte in domeniul conservarii energiei, asa cum se intampla in cele mai multe tari din UE.

#### **Observation 2.3.2:**

Measures proposed in the strategy are correctly designed from the technical point of view, environmental impact, economic and social, but applicable in an ideal context, for a developed country of the EU.

In Romania (in the last 20 years), the energy has not been a national priority, where the reduction of the energy losses were done only by the closure of economic activity and there are not identified financial resources for the thermal rehabilitation of buildings (including administrative buildings!), ANRE regulations discourages efficient cogeneration etc.

#### **Observatia 2.3.2:**

Masurile propuse in strategie sunt elaborate corect din punct de vedere tehnic, impact de mediu, economic si social, dar intr-un context ideal, al unei tari dezvoltate a UE. In Romania (in ultimii 20 ani), energia nu a reprezentat o prioritate nationala, nu s-au redus pierderile de energie decat prin inchideri de activitati economice, nu s-a reusit finantarea reabilitarii energetice a cladirilor (inclusiv a cladirilor administrative!), reglementarile produse de ANRE descurajeaza cogenerarea eficienta etc.

#### **Answer 2.3.2:**

The measures proposed in the strategy are not issued just because are enforced by EU Directives, Romanian legislation in force, Treaties and Conventions where Romanian is party. These measures are mainly selected due to the fact that all these lead to the lowest heating price for the population.

#### **Raspuns 2.3.2:**

Masurile propuse in strategia nu au aparut doar datorita faptului ca sunt impuse de Directivele Europene, legislatia Romaneasca in vigoare si tratatele si convetiile la care Romania este parte ci mai ales pentru faptul ca aceste masuri conduc la obtinerea celui mai scazut pret al energiei termice pentru populatie.

## **2.4 Prof. Dr. Jean Constantinescu**

## **2.4 Prof. Dr. Jean Constantinescu**

#### **Observation 2.4.1:**

In the provisions of the strategy the wording relating to functions of the privatization are contradicted by the specific proposed solutions, which are keeping the public authority as main investor. For example RADET should be removed from the situation of bankruptcy before privatization, the Municipality would rebuild the

#### **Observatia 2.4.1:**

In strategie asertiunile privind functiile privatizarii sunt contrazise de solutiile concrete propuse, care mentin autoritatea publica in rolul de principal finantator. De exemplu, RADET ar fi scos din situatia de faliment inainte de privatizare, primaria ar reconstrui sistemele prin imprumuturi (67%) si credite furnizor (30%) iar



system applying for the loans (67%) and supply credit (30%), and concessionaires would take over ready rebuilt rewarding Municipality because " the current tendency is investment from public funds." Personally I can see this tendency only in a declarative way.

**Answer 2.4.1:**

We do not propose keeping the public authority as the main investor. We propose the main investments to come from private investors (concessionaires).

Public investment is in our proposal limited to investments in the transmission system.

**Observation 2.4.2:**

There are some inconsistencies regarding financing matters, there some chapters where is mentioned that the financing is supported by private investors and others where the Municipality shall invest initially afterwards these investments will be handover to the private operators with money recovered.

The scope of privatization is mainly to ensure the sources of financing, which is impossible for the Municipality to bear it. This scope shall be accomplished from the early stage (of reconstruction).

**Answer 2.4.2:**

To avoid delay in moving the heat only boiler production to the local level we have proposed that the Municipality initially finance the construction. However, when the concessionaire is appointed, assumingly in 2012, we expect that he take over the boilers and reimburse the Municipality

**Observations 2.4.3:**

Instead of a competitive heat market, it is proposed a system of monopoly in the camouflage, like "Single Buyer", based on benchmarking and the transmission operator in this role. For the role of "Market Design" was delivered an "Organization".

In the Organization chapter shall be included some description regarding "Market Design", the word "market" is not used as "market for the services"

In EU, the meaning of PSO had different approach. In the latest there is used a other wording: Systems of General Interest, sometime using PSO wording could lead to a conflict of interest due to the fact that it is maintained a framework of public service instead of real open market. I consider to be realistic the description of PSO made by the consultant.

concesionarii le-ar prelua gata reconstruite recompensand Primaria, deoarece "curentul actual se indreapta catre investitia publica". Personal nu vad acest curent decat declarativ.

**Raspuns 2.4.1:**

Noi nu propunem mentinerea autoritatii publice ca investitor principal. Noi propunem ca investitiile principale sa vina din partea investitorilor privati (concesionari).

Investitiile publice, in cadrul propunerii noastre sunt limitate doar la investitii in sistemul de transport.

**Observatia 2.4.2:**

Sunt ambiguitati referitor la finantare, sunt capitole in care este clar ca finantarea trebuie sustinuta de catre mediul privat si sunt alte capitole in care se mentioneaza ca finantarea trebuie asigurata initial de catre Consiliul General si se vor da sistemele acestea gata facute privatilor si sa recupereze cumva banii.

Rolul privatizarii este in primul rand asigurarea finantarii pe care Primaria nu o mai poate sustine. Daca acest rol nu este clar cineva se poate intreba ce nevoie avem de privatizare. Acest rol trebuie indeplinit inca din fazele incipiente (ale reconstructiei).

**Raspuns 2.4.2:**

Pentru a se evita intarzierile in mutarea producerii caldurii in cazane la nivel local, noi am propus ca Primaria sa finanteze initial constructia acestora. Asadar, cand concesionarul va fi stabilit, presupunand ca acest lucru va avea loc in 2012 si ne asteptam ca acesta va prelua cazanele cu recuperarea investitiei.

**Observatia 2.4.3:**

In loc de o piata competitiva a caldurii, se propune un sistem de monopol deghizat, de tipul "Cumparator Unic", bazat pe benchmaking si cu operatorul de transport in acest rol. In rol de "Proiect al pietei" se livreaza o "Organizare".

In capitolul privind Organizarea trebuie incluse descrieri referitor la "Proiect al pietei", de altfel cuvantul "piata" nu este utilizat ca de altfel "piata a serviciilor".

In UE, PSO este premeditata si diferit inteleasa. In ultimul timp se utilizeaza SIG – servicii de interes general, uneori utilizand expresia PSO s-ar putea ajunge si la conflicte de interes pentru ca se mentine un cadru de serviciu public si nu unul de piata reala. Descrierea facuta de consultant pentru PSO mi se pare realista.

#### Answer 2.4.3:

There will not be a sufficient number of actors on the market and the necessary surplus of capacity to establish competitive market conditions for heat supply. Thus, the market must be regulated and controlled and this is the responsibility of the Municipality in a decentralised concept as outlined in the EU Service Directive.

Competition by comparison (Benchmarking) is successfully implemented in more countries and used as a tool for the regulating and controlling body in implementation of corrective measures where necessary.

We can call it PSO or something else. The important matter is that the City Council, who has the competency to concession the services and related assets must institutionalise the regulatory and controlling body as independent entity from Municipality, to ensure both parties fulfil the conditions of future concessions.

#### Observation 2.4.4:

Arguments are not convincing (not enough competitors!), and examples of "Single Buyer" comes from the past and is no longer found in EU legislation. Moreover, in Central and Eastern Europe all the "Single Buyer" systems had ended in failure and litigations.

How will be the private investor interested?

There is possible by a guarantee of stability, by affordable customers on the market prices.

The privatization shall start from the distribution side, after the distribution is privatized on the chain of supply will be created the stability and guarantee.

#### Answer 2.4.4:

We are not sure what "Single Buyer" refers to. If it refers to the technical-economical load dispatch and the pool pricing of production costs it is not something from the past but the principle of operation is one of the most efficient transmission systems in the world.

Private investors will only be attracted if they see a business opportunities - a profit must be generated. Thus, in order to benefit the consumers (lower tariff etc) and generate a profit at the same time the private investor must demonstrate that he can obtain the necessary cost reduction. This is a difficult balance,

#### Raspuns 2.4.3:

Nu va fi un numar suficient de actori pe piata dar surplusul necesar de capacitate va stabili conditii de piata competitiva pentru furnizarea energiei termice. Totusi, piata trebuie reglementata si controlata, iar aceasta este responsabilitatea Municipality asa cum este definit conceptul descentralizarii in Directiva Europeana a Serviciilor. Iar in Cartea verde si Cartea alba a serviciilor de interes general, lansate de Comisia Europeana in 2003 si 2004, conceptul promovat in domeniu este de liberalizare controlata, autoritatile publice competente pentru utilitatile publice avand importante responsabilitati si puteri de a reglementa respectarea de catre operatori a regulilor pietei si a obligatiilor specifice ale acestor servicii.

Competitia prin comparatie (Benchmarking) a fost cu succes implementata in mai multe tari si este utilizata ca un instrument de catre organismele de reglementare si control in implementarea masurilor corective, atunci cand este necesar.

Acest organism poate fi numit PSO sau in oricare alt fel. Cel mai important aspect este ca CGMB, care are competenta de a concesiona serviciile si bunurile aferente acestora trebuie sa institutionalizeze acest organism de reglementare si control, ca entitate independenta, separata de PMB, pentru a se asigura ca ambele parti indeplinesc conditiile viitoarelor concesiuni.

#### Observatia 2.4.4:

Argumentele invocate nu sunt concludente (nu ar fi suficieni operatori!), iar exemplele citate de "Cumparator Unic" vin din trecut si nu se mai regasesc in legislatia UE. De altfel, in Europa Centrala si de Est toate sistemele de "Cumparator Unic" au sfarsit in esec si litigii.

Cum vor putea fi interesati investitorii privati?

Acest lucru este posibil prin garantarea stabilitatii, prin clienti solvabili la preturile pietei.

Privatizarea ar trebui sa inceapa cu distributia, dupa ce aceasta va fi privatizata pe lantul furnizarii se va putea crea stabilitate si garantie.

#### Raspuns 2.4.4:

Nu suntem foarte siguri ca am inteles la ce va referiti cand spuneti "Cumparator Unic". Daca va referiti la dispecheratul tehnico-economic si la stabilirea preturilor binome pe baza costurilor de productie nu este ceva ce vine din trecut si principiul de operare este unul dintre cele mai eficiente pentru sistemele de transport din lume.

Investitorii privati vor fi atrasi numai daca vor vedea o oportunitate de afacere si anume generarea unui profit. Totusi, pentru ca si consumatorii sa beneficieze si in acelasi timp sa poata genera profit, investitorul

but not impossible! The interest of the investors is generated also by the continuity of these services on long terms, allowing (by guarantee) the recovering of the investment.

Privatisation of the production (construction of new facilities) is far the easiest privatisation to handle as experience is obtainable from almost all EU countries. Privatisation of the distribution is more difficult and requires more preparation.

privat trebuie sa poata obtine reducerile necesare de cost. Este un echilibru greu de stabilit, dar nu imposibil! Apoi interesul investitorilor este atras de continuitatea pietei acestor servicii, cererea mentinandu-se pe termen lung, ceea ce garanteaza recuperarea investitiilor facute.

Privatizarea producerii (construirea unor noi facilitati) este de departe privatizarea cea mai usor de gestionat, considerand experienta obtinuta in alte tari ale UE.

Privatizarea distributiei este mai complexa si necesita o pregatire speciala.

## 2.5 Irina Duica – SC Electrocentrale Bucuresti SA

### Observation 2.5.1:

Privatization of services by concession does not solve the problem of competition. It is not allowed, at least at the level of energy production, do not exist competition. As it is presented in the strategy, there is no place for competition, there will be built new "monopolies".

### Answer 2.5.1:

Free competition will not exist in the area of public services. Mainly, due to the fact that the strategies for these services are established by the competent public authorities. Then, these services shall comply with specific obligations as according to legal provisions in Romania the infrastructure for these services is considered public asset and is not subject for selling just for concession. Usually, in this sector is function only the competition for occupying the market and not inside the market. Inside the market, the competition can run only by analysis and comparing of the indicators.

The technical-economical load dispatch must consider periodically agreed production costs (fuel costs), hourly operation costs (other variable costs) and start/stop costs, based on which the cheapest possible production can be obtained and payments performed.

### Observation 2.5.2:

Not sure how to give "back-up" for solar resources. There is impossible to be ensured a safety heat supply using sources other than ones based of fossil fuels (natural gas). With a production of 40% in solar systems there is not ensured the safety in the heat supply for the city. Also the strategy does not analyze and presents in details how is to be ensured safety in the heat supply to the city.

## 2.5 Irina Duica – SC Electrocentrale Bucuresti SA

### Observatia 2.5.1:

Privatizarea serviciilor prin concesiune nu rezolva problema concurentei. Nu este permis ca, cel putin la nivelul producerii de energie, sa nu existe concurenta. Asa cum este prezentat in strategie, nici nu va fi vorba de concurenta ci de realizarea unor "monopoluri".

### Raspuns 2.5.1:

Competitia libera nu exista in domeniul serviciilor de interes general. In primul rand ca strategiile acestor servicii se stabilesc de catre autoritatile publice competente. Apoi aceste servicii trebuie sa respecte niste obligatii specifice, iar conform prevederilor constitutionale si legale din Romania de regula infrastructura aferenta acestor servicii constituie bun public, care nu se poate vinde ci doar concesiona. De aceea in acest sector functioneaza de regula competitia pentru piata (pentru ocuparea pietei) si nu in cadrul pietei. In cadrul pietei, competitia poate functiona doar prin analiza comparativa de indicatori. Dispeceratul tehnico-economic trebuie sa evalueze periodic costurile de productie (costurile combustibilului), costurile de operare orare (alte costuri variabile) si costurile de pornire/oprire, pe baza carora se poate stabili si obtine cea mai ieftina productie si platile efectuate.

### Observatia

Nu rezulta cum se asigura back-up pentru resursele solare. Este imposibil ca siguranta alimentarii cu caldura sa se poata asigura altfel decat din surse ce functioneaza pe baza de combustibili fosili (gaze naturale). Cu 40% din cantitatea produsa in instalatii solare nu exista siguranta in alimentarea cu caldura a orasului. De altfel, strategia nu face analiza si precizarile privind modul de asigurare a sigurantei.

**Answer 2.5.2:**

Solar energy system includes heat storage for back-up on daily/weekly basic.

The heat storage gives the load dispatcher sufficient time for decision taking of what to do if the sun is not shining for a long period:

- If the waste-to-energy facilities generate power this generation can be reduced obtaining additional heat production.
- Decentralised CHP can be started.
- Local peak-load boilers can be started.

Solar heating systems are not considered having any capacity value. Thus, the capacity on other sources is designed for the maximal heat load.

**Raspuns 2.5.2:**

Sistemele de incalzire solara includ acumularea caldurii realizand o rezerva zilnica sau saptamanala.

Acumularea caldurii acorda dispeceratului suficient timp pentru luarea deciziilor si stabilirea actiunilor ce trebuie indeplinite in cazul in care exista o perioada mai lunga fara soare:

- Daca facilitatile de incinerare genereaza electricitate, aceasta productie poate fi redusa, astfel incat sa se poata obtine un supliment de energie termica.
- Unitatile de cogenerare descentralizate pot porni
- Cazanele pentru acoperirea varfului de consum pot porni.

Sistemele de incalzire solare nu sunt considerate a avea valoare pentru capacitatea instalata. In acest sens, capacitatea celorlalte surse este proiectata pentru acoperirea incarcarii maxime.

**Observation 2.5.3:**

There is clear that classical sources will not use technology from the year 1960 nor in the present neither in 2020. Today in Bucharest in West CET, can be produced 190 Gcal / h in a mixed group, using the latest technology. In South CET, in 2010, will start the construction of a group that will produce 100 Gcal /h.

**Observatia 2.5.3:**

Sursele clasice, nici in prezent si cu atat mai mult la nivelul anului 2020, nu vor mai folosi tehnologia de la nivelul anului 1960. In prezent in Bucuresti, in CET Vest, se pot produce 190 Gcal/h dintr-un grup in centru mixt de ultima tehnologie iar in CET Sud va incepe in 2010 construirea unui grup care va produce 100 Gcal/h

**Answer 2.5.3:**

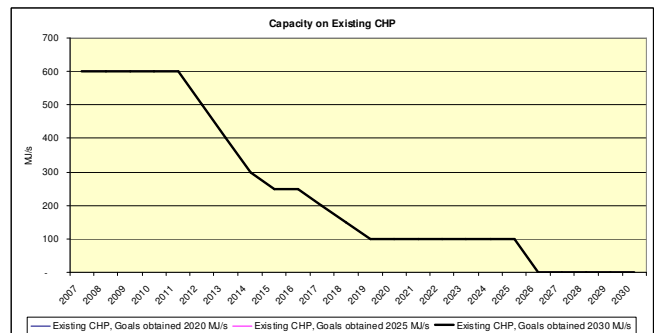
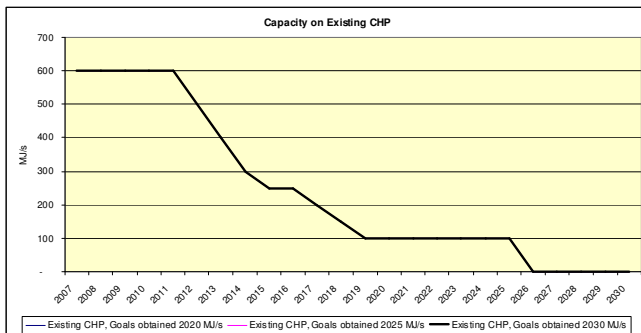
Information about the new facilities at CET SUD is new for us.

The facility on CET Vest is included in our forecast for existing CHP units and as you'll see on the curve below the unit is assumed in operation until 2027 at what time decision regarding rehabilitation or decommissioning must be taken.

**Raspuns 2.5.3:**

Informatiile despre noile facilitati la CET SUD nu au fost cunoscute pana acum de catre noi.

Facilitatile de la CET VEST sunt incluse in prognoza noastra pentru unitatile de cogenerare existente si precum se observa in graficul de mai jos, s-a considerat ca unitatea va functiona pana in 2027 moment in care trebuie luata o decizie referitor la reabilitare sau dezafectare.



A part of the facility is considered decentralised CHP as the production is used in the area around CET VEST.

O parte a facilitatii este considerata a fi in categoria unitati de cogenerare descentralizate, intrucat productia este utilizata pentru furnizarea in zona CET VEST

#### Observation 2.5.4:

Before putting into operation of the other sources, also very expensive (solar, waste, etc.), it seems that the investments done in these classical sources shall be already amortized (credits reimbursed), which lead to the price to lower than the price mentioned in the strategy (72.7 Euro / Gcal).

#### Answer 2.5.4:

We have assumed, in-line with practise found in the best operated energy companies like e-on, Suez or Vattenfall, that after credit reimbursement the tariff is maintained enable increasing own financing.

Lowering the tariff will lead to dependency of external financing and thus limit the investment possibilities.

There is obviously, the reducing of the tariffs will happened only in the condition of competition with solar energy and waste-to-energy facilities.

#### Observatia 2.5.4:

Pana la punerea in functiune a altor surse, de altfel foarte scumpe (solare, deseuri, etc), aceste investitii in sursele clasice vor fi probabil deja amortizate (creditele returnate), ceea ce face ca pretul sa fie sub cel mentionat in strategie ( 72,7 Euro/Gcal).

#### Raspuns 2.5.4:

Am considerat, in conformitate cu practica regasita in companiile care opereaza cel mai bine in domeniul energiei ca E-ON, Suez sau Vattenfall, ca dupa returnarea creditelor tariful este mentinut permitand cresterea capacitatii proprii de finantare.

Scaderea tarifului va conduce la dependenta de finantarea externa, limitand astfel posibilitatile de finantare.

Este evident ca tarifele nu se vor reduce decat daca se va intra in competitie cu energie solara si facilitatile de incinerare.

## 2.6 Dna Marinela Ivan

#### Observation 2.6.1:

As I have mentioned during the meeting, my main comments are related to the compliance with the provision of Terms of References, chapter B.) Final Report (3) as follows:

- Shall be elaborated a realist forecast regarding energy consumption (Ms.Ivan's note: there shall cover all type of municipal services: public transport, lighting, heating, etc)
- Shall determine the real situation of the technologies inside the municipal services (Ms.Ivan's note: public transport, lighting, heating, etc)
- Shall highlight an unitary and coherent plan for the reduction of energy consumption (Ms.Ivan's note: public transport, lighting, heating, etc)
- Shall underline the decisions of City Council regarding investments for development and increasing the efficiency of the energetic services.
- Shall highlight the optimal sequences of actions: depending on priorities, capacity of financing and economical effects (Ms.Ivan's note: I'm sorry, but I didn't remark verry clear in the submitted report/documentation this prioritization and I consider this one being very necessary!).
- Shall contribute to the improvement of local mentality regarding efficient utilization of the energy". (Ms.Ivan's note:I didn't remark in th Final report relevant conclusion/proposal in relation with this requirement from ToR)

## 2.6 Dna Marinela Ivan

#### Observatia 2.6.1:

Cum am mentionat in timpul intalnirii voi face comentariile in primul rand, in raport cu "*Termenii de Referinta (ToR) cap. B.). Raportul (3) final*", dupa cum urmeaza:

- va elabora o prognoza realista privind evolutia consumurilor de energie; ( Nota Ivan Marinela/IM: trebuie sa acopere toata paleta serviciilor municipale: transport public, iluminat, incalzire, etc)
- va determina situatia reala a tehnologiilor din cadrul serviciilor municipale : (IM: transport public, iluminat, incalzire, etc)
- va evidentia un plan unitar si coerent de masuri de reducere a consumurilor de energie; (IM: transport public, iluminat, incalzire, etc)
- va fundamenta deciziile Consiliului general privind investitiile pentru dezvoltarea si eficientizarea serviciilor energetice;
- va evidentia esalonarea optima a actiunilor: in functie de prioritati, de capacitatea de finantare si de efectele economice; (Nota IM: imi pare rau dar, nu am remarcat in raportul/documentul prezentat aceasta prioritizare foarte clar solicitat si care se impune !)
- va contribui la imbunatatirea mentalitatii locale privind utilizarea eficienta a energiei". (Nota IM: nu am remarcat semnificative concluzii/propuneri in legatura cu aceasta solicitare din ToR pentru



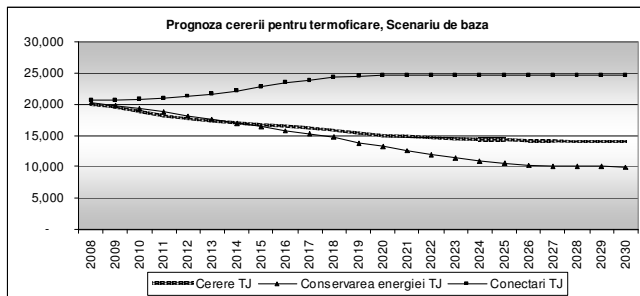
Raportul final).

**Answer 2.6.1:**

General: The area of public transport and public light will be addressed in the final version (we are working on it now).

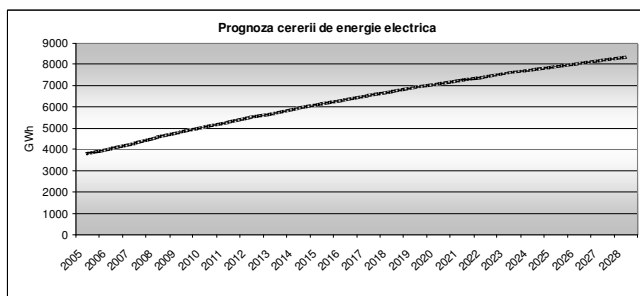
a. The forecast for heat demand is based on about 45% energy conservation fully in-line with the National Energy Strategy and EU-directives/policies (From currently about 180 kW/m<sup>2</sup>/y to about 100 kW/m<sup>2</sup>/y). We consider this realistic in light of energy conservation obtained in other EU countries.

The forecast for heat demand further consider connection of current individual heating to the district heating system. After 2020 about 90-95% of the heat demand is covered by district heating. We consider this realistic in light of the development seen in other EU countries where this value is already obtained in many large cities.



(Figure from Part C Demand Forecast)

The forecast for electricity demand in Bucharest is submitted to us by SC Electrocentrale Bucuresti SA. It shows that the demand will be about double of today's in about 15 years. We assume this forecast is elaborated in compliance with the goals of the National Energy Strategy. However, as the electricity demand is not the responsibility of Bucharest Municipality we have not analysed this further.

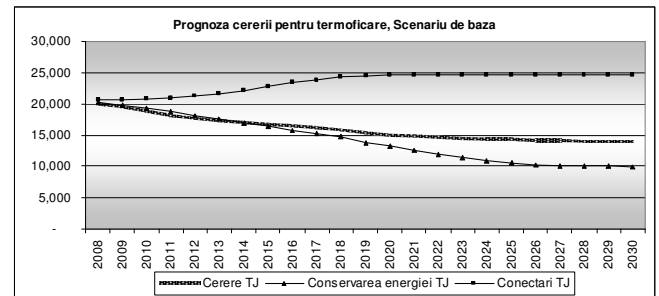


(Figure from Part C Demand Forecast)

**Raspuns 2.6.1:**

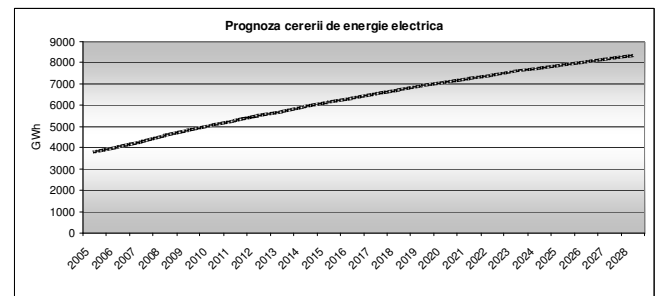
In general: Domeniul transportului public si cel al iluminatului public vor fi incluse in varianta finala (acestea sunt in lucru in acest moment).

a. Prognoza cererii de energie termica se bazeaza pe aproximativ 45% conservarea energiei, fiind in deplina conformitate cu Strategia Energetica Nationala si Politicile si Directivele UE (de la consumul de energie prezent de 180 kW/m<sup>2</sup>/an la aproximativ 100 kW/m<sup>2</sup>/an). Am considerat acest aspect realist avand in vedere conservarea energiei obtinuta in alte tari ale UE. Prognoza cererii de energie termica a luat de asemenea in considerare conectari la sistemul de termoficare ale consumatorilor care in prezent au instalate surse individuale de productie. Dupa anul 2020 circa 90-95% din cererea de caldura va fi acoperita din sistemul de incalzire centralizata. Am considerat-o si pe aceasta realista in lumina evolutiei vazuta in alte tari ale UE, de altfel acele valori sunt deja obtinute in multe orase mari.



(Grafic inclus in Partea C Prognoza Cererii)

Prognoza pentru cererea de electricitate in Bucuresti a fost transmisa catre noi de catre SC Electrocentrale Bucuresti SA. Din aceasta rezulta ca in urmatoorii 15 ani cererea de energie electrica se va dubla. Am considerat ca aceasta prognoza este elaborata in conformitate cu obiectivele din Strategia Energetica Nationala. Avand in vedere faptul ca asigurarea cererii de electricitate nu este responsabilitatea Primariei Municipiului Bucuresti nu am analizat mai mult acest aspect.



(Grafic din Partea C Prognoza Cererii)

b. Da

- b. Yes
- c. Yes
- d. It is difficult to see that investments have been driven by goals of energy efficiency. Most of the investments have been used for replacement of worn-out components and make-up for lack of maintenance. The concept of district heating today is as it was designed in the 1950 - 1960'ties and the system is operated with the same concept as established when the system was commissioned.  
Of course changing 25-year old pumps, heat exchangers and other vital components lead to improved efficiency due to the technical development of the components. However, improved efficiency by utilising the facilities of the modern control systems is not seen in the EIB project – hopefully it is seen in the EBRD project, but we drought.
- e. The priority of the proposed actions should be visible from the time frame included in Part B. However, we will highlight the priorities more clearly in the final report.
- f. Our technical proposal includes a 3months period for public information after approval of the Strategy Report. We intent to implement these services as promised.

- c. Da
- d. Este greu de vazut ca investitiile derulate pana acum au fost ca si obiectiv eficienta energetica. In cea mai mare parte investitiile au avut ca si obiectiv inlocuirea componentelor uzate moral si reparatii ca urmare a lipsei de intretinere. Conceptul actual al sistemului de termoficare este acelasi cu cel pe baza caruia s-a facut proiectarea in anii 1950-1960, iar exploatarea acestuia se face dupa acelasi concept ca cel folosit la punerea in functiune a sistemului.  
Desigur inlocuirea pompelor vechi de 25 de ani, a schimbatoarelor de caldura si a altor componente vitale conduce la imbunatatirea eficientei, ca urmare a dezvoltarii tehnologice a acestor componente. Totusi, imbunatatirea eficientei prin utilizarea facilitatilor oferite de sistemele de automatizare nu au fost vizibile ca urmare a implementarii proiectului finantat de BEI – speram ca vor fi vizibile in proiectul BERD, dar avem dubii in acest sens.
- e. Prioritatile pentru actiunile propuse ar trebui sa fie vizibile in graficele de realizare a actiunilor incluse in Partea B. In consecinta, vom evidentia prioritatile mult mai clar in raportul final.
- f. Propunerea noastra tehnica include o perioada de informare publica de 3 luni dupa aprobarea Raportului Final. Noi intentionam sa implementam aceste servicii asa cum au fost promise.

#### Observation 2.6.2:

I support in explicit manner to keep the already made investments for the rehabilitation and modernization of district heating in Bucharest financed by EIB and EBRD. All investments in relation with increasing the efficiency shall be integrated with responsibility into new proposed technical solutions. Spending of 105 millions Euro for rehabilitation and modernization of district heating imply also responsibility. Denying the necessity and opportunity of these expenditures made means also responsibility to be taken. Therefore, I fully support to be continued the current investments and all those before done, in line with increasing of the efficiency of the system and I am against total reconstruction of the system (*the wheel is not supposed to be invented all the time when a new report is issued*).

#### Answer 2.6.2:

As previously explained it is the finding of the Consultant that the investments more have been used for replacing worn-out equipment than to obtain improved efficiency.

A continuation of the investments should to the opinion of the Consultant depend on an independent

#### Observatia

Sustin in mod explicit mentinerea a ceea ce s-a investit prin programele de finantare derulate (BEI; BERD) pentru modernizarea sistemului de incalzire urban al Bucuresti-ului. Tot ceea ce este investit si realizat in sensul eficientizarii sistemului trebuie integrat in mod responsabil in solutiile noi propuse. Utilizare a cca 105 Mio Euro pentru reabilitarea si modernizarea sistemului de incalzire a insemnat si insemna responsabilitate. Negarea utilitatii si oportunitatii acestor sume investite deja insemna tot responsabilitate care trebuie asumata. Prin urmare, sustin continuarea si integrarea a tot ceea ce deja s-a investit material si uman prin programele mentionate si solutii pe linia eficientizarii sistemului si nu a reconstructiei totale. (*roata nu se inventeaza in fiecare an si cu fiecare raport care se elaboreaza*).

#### Raspuns 2.6.2:

Asa cum s-a explicat anterior este descoperirea Consultantului faptul ca au fost facute investitii mai mult pentru inlocuirea echipamentelor uzate decat pentru a se imbunatati eficienta.

In opinia Consultantului, continuarea investitiilor ar trebui sa depinda de concluziile unei evaluari



evaluation of what is obtained until now in terms of improved efficiencies. We consider that cannot be accepted that the investment is used for replacing worn-out equipment, in case of lack of efficiency.

independente, asupra rezultatul obtinut pana acum in ceea ce priveste imbunatatirea eficientei. Nu trebuie acceptat ca investitiile sunt folosite pentru inlocuirea echipamentelor uzate, daca acestea sunt ineficiente.

### Observation 2.6.3:

I think that the report shall include in a dedicate chapter named "Action Plan for short and long terms" as it is requested in ToR for the Final report (3). My opinion is that by the introduction of those aspects in each subchapter, these lead to the dilution of one of the most important instrument which Municipality shall use in the implementation action.

### Observatia

Cred ca Raportul ar trebui sa contina in mod explicit un capitol numit "*Planul de Actiuni pe termen scurt si mediu*" asa cum este cerut in ToR pentru Raportul (3) final. Dupa parerea mea prin includerea acestor aspecte in fiecare subcapitol al raportului, se dilueaza unul dintre cele mai importante instrumente pe care municipalitatea ar trebui sa le utilizeze in actiunea de implementare.

### Answer 2.6.3:

We understand your concern and will highlight the priorities and the related actions in the final version of the Strategy Report.

### Raspuns 2.6.3:

Am inteles ingrijorarea dumneavoastra si vom sublinia prioritatile si actiunile corespunzatoare in varianta final a Raportului.

### Observation 2.6.4:

RADET – as urban public service company could be considered as a municipal company, to be prepared for the future PPP or to inter into restructuring process so far his activities to become efficient from economical and quality of services !?

The current experiences show that the only the privatization cannot be considered all the time as "a magic wand" able to solve all aspect inside the company. The solution shall be adapted, interpreted and applied in an intelligent manner to the context, based on very clear projections in future considering economical, social, investment and environmental protection aspects and results that could be achieved.

### Observatia 2.6.4:

RADET - ca, companie de servicii publice incalziri urbana poate fi conceputa si ca o companie municipala care sa intre intr-un PPP sau intr-un proces de restructurare astfel incat activitatea sa sa devina performanta economic si al calitatii serviciilor oferite!?. Experiente aflate in derulare arata ca privatizarea exclusiva nu este intotdeauna o *bagheta magica* care rezolva toate aspectele unei si intr-o companie. Solutiile trebuie adaptate, interpretate si aplicate inteligent in context, pe baza unor foarte clare proiectii in viitor din punct de vedere economic, social, investitional, al protectiei mediului si al rezultatelor ce pot fi obtinute.

### Answer 2.6.4:

Our proposal for privatisation of production and distribution (not transmission) is fully in-line with the National Energy Strategy and the EU Service Directive and based on the findings that the Management of RADET is not ready to implement modern high efficient solution but keep talking about fixed flow, by-pass in the thermal substations and bigger pipes.

### Raspuns 2.6.4:

Propunerea noastra de privatizare a producerii si distributiei (nu si a sistemului de transport) este in deplina concordanta cu Strategia Energetica Nationala si Directiva Europeana a Serviciilor bazandu-se si pe descoperirea ca managementul RADET nu este pregatit sa implementeze solutii moderne cu eficienta ridicata, continuand sa discute despre conceptul de operare cu debit fix, by-pass intre tur si retur in PT si tevi cu dimensiuni mari.

## 2.7 Prof.dr.ing.Nicolae Golovanov

## 2.7 Prof.dr.ing.Nicolae Golovanov

### Observation 2.7.1:

The strategy is referring to an interval until 2020, the objectives proposed for the strategy are very ambitious and there is hard to imagine that those will be implemented, in the conditions of missing of major

### Observatia

Strategia se refera practic la intervalul pana in anul 2020, iar obiectivele propuse in cadrul strategiei sunt foarte ambitioase si greu de imaginat ca vor putea fi puse in aplicare, in lipsa unor investitii masive care,

investments and I am fully convinced , that those investment for beyond the possibilities of Municipality.

sunt convins, depasesc cu mult posibilitatile Primariei Municipiului Bucuresti.

**Answer 2.7.1:**

An analysis of the impact of delay in implementation of the proposed measures is prepared and attached. Delaying the implementation will cost about 2,000 MEUR for every 5 year.

**Raspuns 2.7.1:**

A fost intocmita o analiza a impactului generat de intarzierea in implementarea masurilor propuse care este atasat. Intarzierea in implementare va costa aproximativ 2,000 MEuro la fiecare 5 ani.

**Observation 2.7.2:**

The strategy is considering the thermal rehabilitation of all old blocks of apartments from Bucharest. There is very few possible to be fully accomplished before 2020.

**Observatia 2.7.2:**

Strategia ia in considerare reabilitarea termica a tuturor blocurilor vechi din Municipiul Bucuresti, ceea ce este putin probabil sa se realizeze integral pana in anul 2020.

**Answer 2.7.2:**

Introduction of energy and environmental taxes from 2011 and removal of the general subsidises from 2012 combined with a support scheme for thermal rehabilitation introduced at the same time will to our opinion motivate the population have the works performed.

**Raspuns 2.7.2:**

Introducerea taxelor pe energie si de mediu incepand cu anul 2011 precum si eliminarea subventiilor generale din 2012 combinate cu o schema de suport pentru reabilitarea termica a cladirilor introdusa in acelasi timp, in opinia noastra, va motiva populatia sa doreasca executarea lucrarilor.

However, we agree that this is an ambitious goal of the National Energy Strategy.

In orice caz, suntem de acord ca acesta este un obiectiv ambitios al Strategiei Energetice Nationale.

**Observation 2.7.3:**

There is considered that 40 % from the heat demand will be covered by solar energy. Reaching this objective is requesting huge investments, large studies regarding layout of solar panels on the surface of actual blocks and complete replacing of the heat distribution inside blocks. I consider that this is an objective hard to be accomplished.

**Observatia 2.7.3:**

Se considerara ca necesarul de caldura va fi acoperit in proportie de 40% din energia solara. Realizarea acestui obiectiv necesita investitii imense, ample studii privind amplasarea panourilor termice pe suprafata cladirilor actuale si modificarea intregii structuri de incalzire a blocurilor. Apreciez ca este un obiectiv greu de realizat

**Answer 2.7.3:**

Standard solutions are available and a large number of private companies perform the necessary design work and installation. Some companies are already established in Romania and we feel confident that many more will come when the support scheme for solar energy is approved.

**Raspuns 2.7.3:**

Sunt disponibile solutii standard si un numar mare de companii private care pot realiza servicii specializate de proiectare si lucrari de executie. O parte din aceste firme au deschis sedii in Romania si sunt siguri vor aparea si mai multe de indata ce va fi aprobata schema de sprijin financiar pentru energia solara.

**Observation 2.7.4:**

The mandatory connection of all buildings to the moderns district heating system requests first of all the initiation of adequate legal framework which is not yet done. Neither a legal framework is in force for imposing for new building erected to consider the concept of modern system for heat supply.

**Observatia 2.7.4:**

Obligativitatea conectarii tuturor cladirilor la sistemul modern de incalzire necesita, mai intai initierea unui cadrul legislativ adecvat, care inca nu este elaborat. Nu exista cadru legislativ ca cel putin noile cladiri sa fie realizate astfel incat sa corespunda unui sistem modern

**Answer 2.7.4:**

Several EU-directives implemented in the Romania

**Raspuns 2.7.4:**

Mai multe Directive Europene implementate si in

legislation legalise mandatory connection.

An example is the so-called CHP directive on utilisation of a heat demand for cogeneration. According to this directive the member states shall introduce measures to ensure heat supply from CHP or renewable sources in these areas.

There are different legal provisions in Romania stimulating the connection to district heating in specific defined areas. The National Governmental Program for support of district heating for public District heating 2009-2016 heat and comfort, approved by Government Decision 462/2006, establish as an eligibility criteria for financing of the rehabilitation projects, the selection of the heating unitary areas (inside municipality) where will be promoted only one heating solution, respectively district heating.

Furthermore, according to the provision of Law 325/2006 (the law of public service for heating supply), at articles 8 and 9 is specified the obligation of public authorities to establish the heating unitary areas being subject for approval by the city council based on feasibility studies.

legislatia din Romania legalizeaza conectarea obligatorie la sistemul de incalzire centralizata.

Un exemplu este asa numita Directiva a cogenerarii care se bazeaza pe cererea utilă de căldură. In conformitate cu aceasta directiva, statele membre trebuie sa introduca masuri care sa asigure furnizarea energiei termice rezultate din cogenerare catre populatia racordate la sistemele centralizate sau din surse de energie regenerabila in aceste zone.

Exista prevederi legale in Romania prin care este stimulata stabilirea unor zone unitare de incalzire si conectarea acestora la sistemul de incalzire centralizate. In acest sens, programul guvernamental de sustinere financiara a sistemului de incalzire centralizat Termoficare 2006-2015 – caldura si confort aprobat prin HG 462/2006, include ca si conditie de eligibilitate pentru finantare a proiectelor obligativitate stabilirii zonelor unitare de încălzire, reprezentând arealul geografic (zona unei localități) aparținând unei unități administrativ teritoriale în interiorul căreia se poate promova o singură soluție de încălzire, respectiv soluția adoptată pentru reabilitarea și eficientizarea SACET

Mai mult, in conformitate cu Legea 325/2006 (Legea serviciului public de alimentare cu energie termica), la articolele 8 si 9 se vorbeste de obligativitatea autoritatilor de stabilire a zonelor unitare de incalzire, pe care consiliile locale trebuie sa le aprobe in baza unor studii de fezabilitate.

#### **Observation 2.7.5:**

Covering 20% of the heat demand from waste to energy facilities requests a detailed analysis of the structure of the waste. The before done analysis highlighted that the waste produced in Bucharest has different characteristics than other cities in Western Europe.

#### **Answer 2.7.5:**

A sorting of the waste is necessary if efficient incineration shall be obtained. Sorting of plastic bottles and paper in Bucharest is started last year and more will be introduced continuously. Thus, in a longer perspective we believe that the waste composition for incineration will be the same in Bucharest as in other large cities in Europe.

#### **Observation 2.7.6:**

Installation of capacities based on bio fuels covering 20% from heat demand has few chances to be realized due to the fact that the land properties surrounded Bucharest have high value, there is possible to be more efficient to use its for other purposes.

#### **Observatia 2.7.5:**

Asigurarea necesarului de energie primara, in proportie de 20% din deseuri, necesita o analiza de detaliu a caracteristicilor acestor deseuri. Analizele facute au aratat ca deseurile din Municipiul Bucuresti au caracteristice energetice diferite de cele ale reziduurilor din orasele din vestul Europei.

#### **Raspuns 2.7.5:**

Pentru o eficienta ridicata a incinerarii este necesara sortarea deseurilor. Sortarea sticlelor din plastic si a hartiei a inceput in Bucuresti in ultimii ani si mai mult acest lucru va continua. Astfel, intr-o perspectiva mai lunga, consideram ca in Bucuresti, compozitia deseurilor va fi aceeasi ca si in alte orase mari din Europa.

#### **Observatia 2.7.6:**

Realizarea unei ponderi de 20% a energiei pe seama biocombustibililor este putin probabila avand in vedere proprietatile superioare ale terenurilor din jurul municipiului Bucuresti, utilizabile mai eficient pentru alte scopuri

**Answer 2.7.6:**

Romania is today exporter of biomass for bio fuel production and the first domestic processing plant is in operation. The market for bio fuel will be driven by increasing prices in natural gas and oil and by introduction of energy and environmental taxes.

During the period where the oil price reached 140 USD/barrel in 2007/2008 it was feasible to import bio fuel from Brazil to mix in gasoline and diesel oil.

**Observation 2.7.7:**

I consider that in the strategy before 2020, shall be better to exploit the existing heat production units (CET) in the condition of heat demand (disconnection from the power dispatch of the units which are directly used for heat supply in Bucharest).

**Answer 2.7.7:**

Most of the existing units has passed their useful lifetime and must be rehabilitated if the operation shall continue after 2015-2020.

From 2015 the units will have to comply with EU directive regarding emissions from large combustion plants if they shall stay in operation.

CHP is in the EU legislation defined as units with a power/heat ration of 0.85 or above (for each MJ/sec heat 0.84 MW is generated). Perhaps the new unit a CET Sud comply with this but that will be the only one.

The impact of not replacing existing worn-out unit with facilities with low production costs (waste-to-energy and solar energy) is about 2 billion EUR per 5 year.

**Observation 2.7.8:**

I consider that the proposed organization for the heat supply in Bucharest formed by a monopole (transmission system) and privatized part (distribution system) could have benefit effects for the energy in Bucharest. There is urgent mandatory to initiate an adequate legal framework.

**Answer 2.7.8:**

Today the legal framework for organization of concession process is in force. The Government Ordinances 34/2006 and 54/2006 with later changes and modifications and guidelines for concession procedure approved by Government Decision no 717/2008 contain the main legal provisions to do this. Furthermore, from 2010, Bolkenstein Directive will

**Raspuns 2.7.6:**

In prezent, Romania este exportator de biomasa pentru producerea biocombustibilului chiar prima fabrica de procesare este in functiune. Piata pentru biocombustibil va fi dirijata de cresterea pretului la gaze naturale si petrol precum si de introducerea taxelor pe energie si de mediu.

In perioada 2007/2008, in care pretul petrolului a atins 140 USD/baril era fezabil importul de biocombustibil din Brazilia pentru amestec cu benzina si motorina.

**Observatia 2.7.7:**

Apreciez ca in strategia pana in anul 2020 este necesar sa fie mai bine folosite sursele actuale de caldura(CET), prin realizarea, a unor regimuri conduse de necesarul de energie termica (exceptarea de la dispecerizare a grupurilor care furnizeaza energie termica pentru incalzirea municipiului)

**Raspuns 2.7.7:**

Cele mai multe dintre unitatile existente si-au depasit durata normata de viata si ar trebui reabilitate daca se doreste continuarea functionarii dupa 2015-2020.

Din 2015, pentru a putea functiona, unitatile trebuie sa se conformeze cu Directivile Europene privind emisiile Instalatiilor Mari de Ardere.

Cogenerarea in legislatia UE este definita ca fiind produsa de unitati cu un raport electricitate/caldura de 0.85 sau superior(pentru fiecare MJ/s cadura sunt generati 0.84 MW electricitate. Este posibil ca noua unitate care se va construi la CET SUD se va conforma cu aceste cerinte, dar va fi doar o singura unitate.

Impactul neinlocuirii unitatilor uzate cu facilitati cu costuri de productie scazute(facilitati de incinerare si energie solara) este de aproximativ 2 miliarde Euro pe 5 ani.

**Observatia 2.7.8:**

Consider ca organizarea sistemului de incalzire a municipiului in partea de transport (monopol) si partea de distributie (privatizata) poate avea efecte benefice pentru energetica municipiului. Este necesara intierea de urgenta a cadrului legislativ adecvat.

**Raspuns 2.7.8:**

In prezent exista cadrul legal pentru stabilirea concesiunilor. OUG 34/2006, OUG 54/2006 cu modificarile si completarile ulterioare si normele metodologice de aplicare aprobate prin HG 717/2008 contin prevederile legale principale pentru acestea. De asemenea, aplicarea Directivei Bolkenstein incepand din 2010 va dinamiza procesul de

stimulate the process for the opening of the market and privatisation(in the concessions way).

deschidere a pietei si privatizare (in sensul de concesiune).

**Observation 2.7.9:**

Initiation of the legal framework for the introduction of pooled tariff is correct and logical. Taking into consideration that the distribution system will be privatized, the structure of the tariff shall be analyzed based on strategy proposed by the private operators.

**Observatia 2.7.9:**

Initierea legislatiei pentru plata energiei termice pe baza tarifului binar este corecta si logica. Avand in vedere faptul ca partea de distributie urmeaza a fi privatizata, modul de plata a energiei termice poate fi analizat in functie de strategia operatorilor privati.

**Answer 2.7.9:**

No answer considered necessary. We agree.

**Raspuns 2.7.9:**

Nu consideram necesar un raspuns. Suntem de acord cu observatia.

**Observation 2.7.10:**

Considering that in Romania, the power production is based on renewable sources (hydro, nuclear, wind)there is necessary to be analyzed the introduction of electrical heating, used during night time, being a solution used these days and this one could be efficient also for the heating system in Bucharest and also for the electro-energetic system

**Observatia 2.7.10**

Avand in vedere faptul ca, in Romania, energia electrica este obtinuta in mare masura din surse nepoluante (hidro, nuclear, instalatii eoliene), este necesar a fi analizata utilizarea solutiilor electrice, utilizabile pe durata noptii este o solutie care este practicata si poate fi eficienta atat pentru sistemul local de incalzire, dar si pentru sistemul electroenergetic.

**Answer 2.7.10:**

Several coal fired power plants are currently in the process of rehabilitation. We assume that these plants will be used when rehabilitated.

Thus, the marginal production of electricity in the heating season will be coal fired plants.

Accumulating heat from electricity in the night time is seen in countries with the same production patters as in Romania, for example in Sweden. However, such heating is not competing with district heating but used in small towns and country side building.

Surplus electricity in the night time could more feasible, like in some hydro-power countries, be used for pumping water to water storages for peak load power generation.

**Raspuns 2.7.10:**

Mai multe centrale pe carbune sunt in prezent in proces de reabilitare. Consideram ca aceste instalatii vor fi utilizate dupa ce vor fi reabilitate.

Astfel, productia marginala de electricitate in sezonul de incalzire se va baza pe centrale pe carbune.

Acumularea caldurii ca urmare a producerii de electricitate este o model obisnuit in tari care utilizeaza aceleasi modele de productie ca si Romania, de exemplu Suedia. Totusi, caldura produsa in acest fel nu se afla in competitie cu sistemul de incalzire centralizat dar este utilizata in orase mici si cladiri din zona rurala.

Surplusul de electricitate in perioada noptii ar putea fi mai fezabil daca ar fi utilizat, ca de exemplu in anumite tari cu potential hidro ridicat, pentru pomparea apei in lacurile de acumulare pentru generarea electricitatii in perioadele de varf.

**Observation 2.7.12:**

The strategy for the reduction of the energy consumption in transport system brings few concrete aspects, that impose in the future, to be developed a specific strategy for redefinition of the public transport system (by increasing the share of electrical public transport) with establishment of special routes also a private transport by encouraging the public transport but also by elaboration of an efficient transport scheme in Bucharest

**Observatia 2.7.12:**

Strategia pentru reducerea consumurilor de energie in sistemul de transport aduce putine aspecte concrete, ceea ce impune ca necesara dezvoltarea unei strategii specifice pentru redefinirea atat a sistemului public de transport (prin cresterea ponderii transportului electric) cu asigurarea unor trasee speciale, precum si a transportului privat atat prin incurajarea utilizarii transportului public, dar si prin elaborarea unei scheme eficiente de transport in



municipiu.

**Answer 2.7.12:**

Your observation regarding improved/increased public transport is fully in-line with our proposals. The question is if there is the necessary political will to introduce congestion charges or road pricing and parking payment to provide the necessary funds for developing the public transport.

**Raspuns 2.7.12:**

Observatiile dumneavoastra referitor la imbunatatirea/cresterea transportului in comun este in totalitate in linie cu propunerile noastre. Intrebarea este daca exista vointa politica necesara pentru a se introduce taxa de aglomerare sau taxa de drum si plata parcarii pentru genera fondurile necesare pentru dezvoltarea transportului in comun.

**Observation 2.7.13:**

In order to reach the goals of the strategy is necessary to be elaborate a clear schedule regarding action to be taken in for new legislation initiatives, elaboration of these new laws necessary for implementation of the objectives. Each of necessary law shall be supported by related investments, in this way being highlighted the practical way for the implementation. Mainly the elaboration of the necessary legislation is subject for practical implementation of the objectives of the strategy.

**Observatia 2.7.13:**

Pentru realizarea obiectivelor strategiei apare necesara elaborarea unui program clar privind legislatia care trebuie sa fie initiata si elaborata pentru punerea in aplicare a obiectivelor acesteia. Fiecare dintre legile necesare trebuie insotite de efortul financiar necesar fiind puse in evidenta astfel posibilitatile practice de realizare. De fapt elaborarea legislatiei necesare conditioneaza posibilitatea practica de abordare a obiectivelor strategice.

**Answer 2.7.13:**

We find that the necessary legislation is in place for obtaining the goals of the strategy. There is necessary to be made a series of harmonisation and filling in for the secondary legislation for public services and renewable sources(specially between district heating legislation, waste management and support scheme for the promotion of the renewable resources). All these action to be taken by Municipality will be include the Action plan in Final Strategy Report.

**Raspuns 2.7.13:**

Noi consideram ca pentru atingerea obiectivelor generale din strategie legislatia necesara este in vigoare. Este adevarat ca mai sunt necesare unele armonizari si completari ale legislatiei secundare a utilitatilor publice si ale resurselor regenerabile (in special intre legislatia incalzirii centralizate, a deseurilor si cea a sustinerii energiilor regenerabile, inclusiv cu privire la schemele de sprijin aferente).

Toate aceste actiuni se vor mentiona in Planul de actiuni din varianta finala a Strategiei.

**Conclusion from Prof.dr.ing.Nicolae Golovanov:**

The proposed objectives of the strategy are ambitious and in line with EU environmental requirements. The magnitude of the necessary investment leads to the impossibility or very few chances for the implementation of these objectives until 2020. I consider that the proposed strategy to could be less ambitious, but inside the forecasted limits of the funds which Municipality is able to attract its.

**Concluzii din partea Prof.dr.ing.Nicolae Golovanov:**

Obiectivele strategiei propuse sunt ambitioase si in concordanta cu cerintele de mediu ale UE. Amploarea investitiilor necesare face ca realizarea practica a acestor obiective, pana in 2020, sa fie putin probabila. Apreciez ca strategia propusa ar putea fi mai putin ambitioasa, dar in limitele previzibile ale fondurilor pe care Municipiul Bucuresti ar putea sa le atraga pentru realizarea obiectivelor acesteia.

**2.8 City Councillor Dragos Florescu**

**2.8 Consilier General Dragos Florescu**

**Observation 2.8.1:**

I will be very briefly and trenchant. I don't believe in the privatization of RADET because I have a recent

**Observatia 2.8.1:**

O sa fiu foarte scurt si transant. Nu cred in privatizarea RADET-ului pentru ca am un exemplu

example Apa Nova. We have given under concession the services to Apa Nova and what we get ? We get a huge increasing of the tariff and maintained the same quality. I believe in the restructuring of RADET, in his transformation into a commercial company, outsourcing some services, but RADET shall be kept as a state company. Why RADET is today in this situation? For sure not due to the bad management or tariffs, but due to the many investments done, being not cover by the tariff.

My opinion is that RADET shall be a public company, a company held by the Municipality. There is to be decided if the Municipality will handover the production units or not. About my opinion these one shall be continuously held by Ministry of Economy, which is more powerful and viable. But to introduce a private company which will increase the tariff based on his wish, I fully disagree. Clearly, me as a member of City Council I disagree with this formula. I am interested in opinion of the general manger of RADET, and I cannot understand why RADET as a state company cannot be restructured and streamlined? Because RADET has 6000 employees, which have nothing to do there, I propose to outsourcing a art of services.

#### **Answer 2.8.1:**

The strategy we have prepared is founded on EU-directive and policies, National Legislation and International Conventions.

Hence, it is not a matter if the Consultant agrees or disagree with Consilier General Mr. Dragos Florescu in his opinion regarding privatisation. It is found in EU and National Legislation that energy distribution and energy production shall be privatised and the Energy Strategy is elaborated accordingly. In addition, as above mentioned, privatisation (through concession) including private investments can lower the increasing of the heat tariff in Bucharest and release the local budget from the huge effort of investments, allowing the reallocation of the resources to the other needs of the city.

## **2.9 Consilier General Veronica Toma**

#### **Observation 2.9.1:**

The same comments as Mrs. Ivan

#### **Answer 2.9.1:**

We consider the answers to Mrs. Ivan covering the observations.

foarte apropiat Apa Nova. Am concesionat serviciile Apei Nova si ce am realizat? Am realizat o crestere de tarife enorma si calitate aceeasi. Cred intr-o restructurare a RADET, in transformarea lui intr-o societate comerciala, externalizarea unor servicii, dar RADET sa ramana o societate de stat. De ce pentru ca RADET a ajuns aici nu din cauza managementului, nu din cauza tarifulor ci din cauza investitiilor care s-au facut (si s-au facut destule si care nu au fost acoperite de tarif.

Parerea mea este ca RADET trebuie sa fie o societate publica, o societate a Primariei. Trebuie gandit clar daca luam si producatorul sau nu. Dupa parerea mea nu cred ca este bine pentru ca acolo trebuie foarte multi bani pentru investitii si l-as lasa in continuare pe producator la Ministerul Economiei, care are totusi alta forta si alta viabilitate. Dar sa fac o societate privata care sa mareasca tariful dupa cum vrea el nu sunt de acord. Clar in calitate de consilier general nu agreez aceasta formula. M-ar interesa si punctul de vedere al directorului general al RADET si nu stiu de ce RADET ca societate de stat de ce nu poate fi restructurat, de ce nu poate fi eficientizat? Pentru ca are 6000 de oameni care nu prea au ce face acolo, as externaliza o parte din servicii

#### **Raspuns 2.8.1:**

Strategia care a fost intocmita are la baza Directivile si Politicile Europene, Legislatia Internationala si Conventiile internationale la care Romania este parte.

Din acest motiv, nu se pune problema daca Consultantul accepta sau nu opiniile d-lui Consilier General Dragos Florescu in ceea ce priveste privatizarea. Este mentionat atat in Legislatia Europeana cat si cea nationala ca distributia si producerea energiei trebuie privatizate, iar strategia energetica este elaborata in acest sens. In plus asa cum s-a aratat mai sus, privatizarea prin concesionare cu aport de capital pentru investitiile propuse poate determina o diminuare a cresterilor de tarif pentru bucuresteni si o degrevare majora a eforturilor bugetului local, care pot fi astfel disponibilizate pentru alte importante nevoi ale orasului.

## **2.9 Consilier General Veronica Toma**

#### **Observatia 2.9.1.**

Aceleasi comentarii formulate ca si d-na Ivan

#### **Raspuns 2.9.1:**

Consideram ca raspunsurile la observatiile d-nei Ivan acopera si aceste observatii



## 2.10 General Councillor Nicusor Stan

### Observation 2.10.1:

NGO for owner's association made references to the necessity of political willing and we, the City Council, represents at least until 2012 the political willing.

In order to be able to express our political willing there is necessary to be formulated the ideas and this shall be done with support of specialist.

The strategy submitted has some shortcomings and also the approach is not the one expected.

Also the submitted energetic strategy is only one module, being the energetic strategy for heat supply. Municipality has also other problems: public transport, public lighting, heat supply and in the latest environment issues.

### Answer 2.10.1:

We agree in your observation regarding public transport and public light and this will be included in the final version of the Energy Strategy.

The approach for elaborating the strategy is approved by the Energy Committee by approving the reports from Phase II: "Clarification of Goals" and "Recommendation Report".

For the preparation of the modules, the Consultant considered the development of the legal competency for public services for power supply and natural gas supply, which initially according to the provision of Law 326/2001, were under local authority competency and later by introducing of the new framework Law of public services no. 51/2006(with further modifications), these modules were released from the competency of local authorities.

### Observation 2.10.2:

From a recent news about Germany, the German government in the next 10 years mobilizes to introduce more than one million electric cars.

We found out a figure and how much it will cost the development of entire heat distribution system, respectively 3 billion EUR by 2020. As the issue was not addressed as a unit, from where you can know that these 3 billions will be invested together with a consortium of companies to build an atomic-power plant, which can bring more benefit and have everything based on power, not polluting and then to sell these green certificates. I think the approach needs to be more complex.

### Answer 2.10.2:

Germany and the Scandinavian countries has realised (energy planners have said that for years) that when wind power exceed 15-25% of the electricity production you must stop (pitch) the turbines in the

## 2.10 Consilier General Nicusor Stan

### Observatia 2.10.1:

Liga ligii asociatiei de proprietari a facut referire la necesitatea unei vointe politice ferme, pana in 2012, asta reprezentam noi, consilierii generali.

Pentru a ne exprima o vointa politica este necesara conturarea o gandiri si aceasta se poate realiza cu ajutorul specialistilor.

Strategia primita are anumite lipsuri si nici abordarea nu este cea asteptata.

Deasemenea Strategia energetica prezentata este doar un modul, fiind doar strategie energetica termica, municipalitatea are probleme cu transportul, iluminatul public, sistemul de incalzire, si mai nou cu poluarea mediului inconjurator.

### Raspuns 2.10.1:

Suntem de acord cu dumneavoastra referitor la observatiile dumneavoastra cu privire la transportul in comun si iluminat public si acestea vor fi incluse in versiunea finala a Strategiei Energetice.

Abordarea pentru elaborarea strategiei a fost aprobata de catre Comitetul Energetic Municipal cu ocazia aprobarii Rapoartelor din Etapa a II-a: "Clarificarea Obiectivelor" si "Recomandari".

In dezvoltarea modulelor Consultantul a tinut in seama de faptul ca serviciile de distributie a energiei electrice si de distributie a gazelor, aflate initial in Legea 326/2001 in competenta autoritatilor publice locale, au fost scoase din competenta acestor autoritati prin OUG 9/2002, aspect mentinut si in Legea cadru a utilitatilor publice, nr. 51/2006 cu completarile ulterioare.

### Observatia 2.10.2:

Dintr-o stare recenta despre Germania, Guvernul german in urmatoorii 10 ani se mobilizeaza sa introduca peste un milion de masini electrice.

Am aflat o cifra si anume cat ne-ar costa punerea la punct a intregului sistem de distributie a energiei termice respectiv 3 miliarde de Euro pana in 2020. Pentru ca nu a fost abordat unitar de unde se poate sti ca aceste 3 miliarde se investesc impreuna cu un consorciu de firme sa se construiasca o centrala atomo-electrica, care poate ar fi mai avantajos si sa mutam totul pe electric, care nu mai polueaza si ulterior sa vindem aceste certificate verzi. Cred ca abordarea trebuia sa fie mai complexa.

### Raspuns 2.10.2:

Germania si tarile Scandinave au realizat (expertii in planificare energetica spun acest lucru de ani de zile) ca atunci cand electricitatea produsa de turbine eoliene depaseste 15-25% din productia de

night time and in the weekends, especially in the summer time. The idea of charging electrical cars and hybrid cars in the night time and in the weekends to increase the utilisation of the wind turbines is not new – the news is that it is now decided to have an implementation programme ready before 2012 and the necessary installation ready before 2015.

An investment of 3 billion EUR shall be seen in relation to the total cost of heat supply in Bucharest. The annual non-subsidised cost of district heating supply is today about 650 MEUR ~ more than 1 billion EUR for all of Bucharest. Is an investment of about 3 times the annual costs large?

By investing the 3 billion EUR we'll obtain a reduction from about 1 billion/year to about 0.5 billion per year and we have obtained a sustainable future independent from increased in natural gas prices, shortage of natural gas and oil and energy/environmental taxes. And we can tell our children than in our lifetime we took responsibility in respect of global warming.

### Observation 2.10.3:

The strategy also focused more on RADET. My opinion is that RADET is not the cause, RADET is an effect and I would look more to encourage the production if we keep this option where we burn (fuel) and if we burn the resulting heat should be recovered and valued. But maybe we do not burn and then when we focus on the production of power and we will consume electricity also to heat. There are different options and I would have wanted to see such directions addressed. We appreciate your work but I think I does not help us enough to think about something sustainable for 2020 or 2030, and our grandchildren will punish us if we think a little less durable.

The direction is not complete and it can help me to make a decision

### Answer 2.10.3:

It is to our opinion necessary that the Municipality of Bucharest takes some actions to ensure a cheaper heat production than today. The cheapest alternative we can recommend is waste-to-energy and solar heating. Both these productions are expensive in construction but has no fuel costs. Systems based on a high percentage of waste-to-energy has experienced over a 20-year that the heat price based on natural gas has tripled while the heat price based on waste-to-energy has fallen 20% (all in fixed prices).

The question regarding electrical heating is discussed previously in 2.7.11 and 2.10.2.

RADET is a part of the problem. For too long RADET has not been willing to change the concept of heat

electricitate, turbinele trebuie orite in perioada de noapte si in week-end, mai ales in perioada de vara. Ideea de a incarca bateriile masinilor electrice si masinilor hibride pe perioada noptii si in week-end nu este noua – noutatea consta in aceea ca se hotaraste a avea un program de implementare gata inainte de 2012 si instalatiile gata inainte de 2015.

Investitia de 3 miliarde Euro trebuie vazuta ca si costul total pentru furnizarea energiei termice in Bucuresti. Costurile anuale nesubventionate pentru sistemul de termoficare sunt de 650 milioane ~ mai mult de 1 miliard pentru intreg Bucurestiul. Poate fi considerat mare un cost de investitii care este de aproximativ de 3 ori mai mare decat costurile anuale?

Prin investirea a 3 miliarde Euro se va obtine o reducere a costurilor anuale de la 1 miliard la 0.5 miliarde si am obtinut o independenta sustenabila in viitor fata de cresterea pretului la gaze naturale, scaderea rezervelor de gaze naturale si petrol si taxele pe energie si de mediu. Si putem sa le spunem copiilor nostri ca in vremea noastra ne-am asumat responsabilitatea in ceea ce priveste incalzirea globala.

### Observatia 2.10.3:

De asemenea, strategia s-a concentrat mai mult pe RADET. Opinia mea este ca nu RADET este cauza, RADET este un efect si m-as uita mai mult la incurajarea productiei daca ramanem pe aceasta varianta in care ardem (combustibil) iar daca ardem rezulta energie termica sigur ca trebuie recuperata si valorificata. Dar poate nu mai ardem si atunci atunci ne concentram pe producerea de energie electrica si vom consuma energie electrica si pentru a ne incalzi. Sunt variante si as fi dorit sa vad astfel de directii abordate. Apreciem munca dumneavoastra dar cred ca nu ne ajuta suficient pentru a gandi ceva durabil pentru 2020 sau chiar 2030, iar nepotii nostri ne vor sanctiona daca am gandi ceva mai putin durabil.

Directia nu este cea completa si pe mine nu ma ajuta sa pot lua o decizie

### Raspuns 2.10.3:

In opinia noastra, consideram necesar ca Primaria Municipiului Bucuresti sa ia anumite masuri pentru a asigura o productie a energiei termice la un pret mai scazut decat este in prezent. Alternativa cea mai ieftina pe care o putem recomanda se bazeaza pe recuperarea energiei din deseuri si energia solara. Producerea in cele doua solutii este scumpa din punct de vedere al constructiei, dar in final costul combustibilului este zero. Sistemele de incalzire centralizata in care producerea energiei termice intr-un procent ridicat provine din recuperarea energiei din deseuri au experimentat intr-o perioada de peste 20 de ani faptul ca pretul energiei din gaze naturale s-a triplat, in timp ce pretul energiei produsa din

transmission and heat distribution as it was established when the district heating network was expanded in the 1960-1979'ties. The result is the most expensive heat transmission and distribution systems we know of in Europe and RADET in spite of large investments in the last decades. It should be obvious that a district heating company, in spite of large investments, unable to improve the efficiency, increase the lifetime of main components and unable to control the water losses etc must be restructured – and it is the responsibility of the Municipality of Bucharest to take the necessary actions in this respect.

We hope the action plan, which we will include in the final version of the Strategy Report, will enable you and the Council of Bucharest Municipality to take the necessary decisions.

recuperarea energiei din deseuri a inregistrat scaderi de 20%(toate in costuri fixe).

Observatia referitoare la incalzirea electrica este tratata anterior in 2.7.10 si 2.10.2.

RADET este parte in aceasta problema. De foarte mult timp RADET nu a dorit sa schimbe conceptul privind transportul si distributia caldurii, concept stabilit odata cu extinderea sistemului in perioada 1960-1979. Rezultatul acestei situatii este ca RADET opereaza cel mai scump transportul si distributia caldurii fata de ceea ce stim noi in Europa, in ciuda faptului ca au fost facute investitii foarte mari in ultimile decenii. Este absolut evident ca trebuie restructurata o companie de termoficare, care in ciuda investitiilor imense este incapabila sa imbunatateasca eficienta, sa creasca durata de viata a componentelor si incapabila sa controleze pierderile de agent termic etc – si este responsabilitatea Primariei Municipiului Bucuresti sa ia toate masurile in acet sens.

Noi speram ca planul de actiuni, pe care il vom include in varianta final a Strategiei va va permite dumneavoastra Consiliului General sa luati masurile necesare.

## 2.11 Municipality Public Utility Department

### Observation 2.11.1:

The objective of EU policy provided by the Energy Strategy of Romania is increasing the share of renewable in total energy mix to 20% of total EU energy consumption by 2020. Ensuring 100% of thermal energy demand through renewable sources in the current strategy for 2020 is not too optimistic?

### Answer 2.11.1:

First of all, the 20% renewable energy is a minimum. And secondly, the 20% is an average for all EU countries and it is accepted that some countries cannot obtain the goal while other countries can obtain more. Think for example of countries with hydro power and of countries without this resource of renewable energy.

In almost all countries it is found that introducing renewable sources for heating purpose is the most feasible way to obtain the national targets. We see in many countries that the transport sector year by year is increasing the CO<sub>2</sub> emission due to more cars and people driving more – this must be compensated by additional reduction in other sectors.

## 2.11 Directia Utilitati Publice - PMB

### Observatia

In Strategia energetica a Romaniei este prevazuta, ca obiectiv al politicii UE, cresterea ponderii surselor regenerabile de energie in totalul mixului energetic la 20% din totalul consumului de energie al UE pana in 2020. Asigurarea unui procent de 100% din necesarul de energie termica prin surse regenerabile, prevazut in actuala strategie pentru anul 2020 nu este prea optimist?

### Raspuns 2.11.1:

In primul rand 20% energie regenerabila este minim. In al doilea rand 20% este o medie pe toate tarile UE si este acceptat ca anumite tari nu pot atinge obiectivul, in timp ce altele pot obtine mai mult. Ganditi-va la tarile cu energie hidro si la tarile fara potential de energie regenerabila.

In marea majoritate a tarilor s-a identificat ca introducerea surselor regenerabile pentru incalzire este cea mai fezabila cale pentru atingerea tintelor nationale. Este vizibil in multe tari, ca in sectorul transport creste an de an cantitatea de emisii de CO<sub>2</sub> datorita cresterii numarului de masini, iar oamenii conduc masinile din ce in ce mai mult – si aceasta situatie trebuie compensata prin reducerea emisiilor in alte sectoare.

### Observation 2.11.2:

The study considers, in Part A, that approximately 40% of heat demand in 2020 will be covered by solar systems, in part C it is estimated that 30% of the demand related to 2020 and respectively the 20% of the 2008's. We request the submission of a calculation which was the basis of this value (to highlight the number of apartments blocks envisaged, areas available for the installation of solar panels, orientation, shading, operating hours, etc.. Also there is required to be submitted a scheme of the solar installation for one apartments block in order to be verified the possibility of applying to the rest of approximately 8,000 apartments blocks. It also will review proposed accumulation scheme (at level of block, on weekly basis, etc.) with the best recommended locations (basements, aerial, underground). We want to highlight that a relevant number of blocks have improper basements and there are private property of the owners associations. We estimate that 40% is overestimated by taking into account the problems of construction blocks, orientations, shading, etc..

The study explains the installation of solar panels shall not be included in the plan of reconstruction, being made before 2020, but also stated that they will fit together with the thermal rehabilitation of construction, which would actually be the first option, by providing the heat - input for all other options. So, instead there is a short term option, it should be achieved with thermal rehabilitation. Asked for clarification.

The value of investments in solar installations is estimated at 611 million euros or 550 million euros?

### Answer 2.11.2:

It is not a task for the project to perform design drawings for how to install solar panels on the buildings. We have based our calculations on 6 m<sup>2</sup> solar panel and 300 l heat storage for a one-family house of about 200 m<sup>2</sup> (these are the values for the standard systems sold on the WEB). The conditions for our calculations and the calculations are shown in the Part C, Appendix 7C.

### Question 2.11.3:

The total value of investments needed for reconstruction of district heating system is presented in chapter 8 as 6.8 billion Euros of investment and the values summarized in distribution, transportation and production are 4.917 billion Euros. Investment in production is evaluated in Part B, chapter A summary,

### Observatia 2.11.2:

Studiul apreciaza, in partea A, ca aproximativ 40% din valoarea cererii de caldura din anul 2020 se va asigura prin sisteme solare, in partea C se apreciaza ca 30% din necesarul pe 2020 respectiv 20% din necesarul lui 2008. Solicitam prezentarea unui calcul care a stat la baza acestei valori (care sa evidentieze numarul de blocuri avute in vedere, suprafetele disponibile pentru amplasarea captatoarelor, orientari, umbriri, ore de functionare, etc. De asemenea se solicita prezentarea unei scheme aplicate de instalatie solara la un bloc, pentru a analiza posibilitatea de aplicare la cele aproximativ 8000 blocuri. De asemenea se va analiza schema de acumulare propusa (acumulatoare la bloc, acumulatoare saptamanale etc) cu recomandarile de amplasamente (subsoluri, aerian, ingropat). Precizam ca o mare parte din blocuri au subsoluri inadecvate constructiv iar acestea sunt proprietatea privata a asociatiilor de proprietari. Apreciem ca procentul de 40% este supraestimat luand in considerare problemele constructive ale blocurilor, orientarile, umbririle, etc.

Studiul precizeaza ca montarea panourilor solare nu trebuie obligatoriu inclusa in planul de reconstructie, nefiind realizabila inainte de 2020, dar totodata se precizeaza ca acestea se vor monta odata cu reabilitarea termica a constructiilor, care ar fi de fapt prima optiune, conditionand necesarul de caldura – input pentru toate celelalte optiuni.

Deci, desi nu este o optiune pe termen scurt, ea trebuie realizata odata cu reabilitarea termica. Solicitam clarificari.

Valoarea investitiilor in instalatiile solare este estimata la 611 milioane euro sau 550 milioane euro?

### Raspuns: 2.11.2:

Nu intra in scopul proiectului executarea planurilor care sa arate cum vor fi instalate sistemele solare pe cladiri. Calculele noastre s-au bazat pe o suprafata de panouri solare de 6m<sup>2</sup> careia ii corespunde o capacitate de acumulare a caldurii de 300 l si acest sistem deserveste o casa pentru o familie avand o suprafata utila de 150 m<sup>2</sup> (acestea sunt valori disponibile pe internet pentru sisteme standard vandute). Conditile in care au fost facute calculele sunt aratate in Partea C, Anexa 7C.

### Observatia 2.11.3:

Valoarea totala a investitiilor necesare pentru reconstructia sistemului de termoficare este prezentata in capitolul 8 ca fiind de 6,8 miliarde euro iar valorile de investitie insumate la distributie, transport si productie sunt de 4,917 miliarde euro. Investitia in sistemul de productie este evaluata in



from 3.3 billion Euros of which for solar installations (public) 550 million Euros and around 2750 million in private investment. In the Part C, the investment in production are valued at 1.7 billion Euros. Please clarify these values in a table summary of investment needs by category (consumer, distribution, transportation, production) and make proposals for financial solutions.

We asked for the assessment of the investment in thermal rehabilitation versions with and without thermal solar installations

### Answer 2.11.3:

The investments are found in Chapter 10 (not on Chapter 8).

The estimated cost for the distribution systems is about 1.2 billion EUR. All investments are considered provided by the concessionaires. The estimate do not include cost of investments in thermal rehabilitation and heat installation inside the blocks as these are private owned and thus not a subject for public investment.

The estimated costs for the transmission system is about 0.42 billion EUR, mainly public investments.

Investment in production facilities are estimated to about 1.7 billion:

- Solar panels 611 million EUR of which about 407 million EUR is provided by the Government in terms of the support scheme for solar energy. The remaining is invested by the concessionaires.
- Local peak-load boilers 90 million EUR provided by the concessionaires.
- Decentralized CHP 400 million EUR provided by the Concessionaire for installing and operating the CHP units.
- Waste-to-energy facilities 600 million EUR provided by the concessionaires.

The calculations are presented in Part C Appendix 10a

### Observation 2.11.4:

The structure of production is: 40% solar energy, 20% waste, 20% decentralized CHP on bio-fuel, 10% HoB on bio-fuel, 10% other renewable sources. Please clarify what period these percentages refer. How will be the structure on winter, when a long period will be no sunny? It will increase percentages of bio-fuel sources or gas sources will be done?

partea B, capitolul A rezumat, la 3,3 miliarde euro din care pentru instalatiile solare (publice) 550 milioane euro si aproximativ 2750 milioane euro in investitiile private. In partea C investitiile in productie sunt evaluate la 1,7 miliarde euro. Va rugam sa ne clarificati aceste valori printr-un tabel centralizator al necesarului de investitii pe categorii (consumator, distributie, transport, productie) precum si sa faceti propuneri de solutii de finantare. Solicitam si o evaluare a investitiilor cu reabilitarea termica in variantele cu si fara instalatii solare.

### Raspuns 2.11.3:

Investitiile sunt descrise in Capitolul 10 (si nu in capitolul 8).

Costurile estimate pentru sistemele de distributie sunt de 1,2 miliarde Euro. Toate investitiile se asteapta sa fie facute de catre concesionari. Estimarea nu include costul investitiilor in reabilitarea termica si instalatiile de incalzire din interiorul blocurilor, atata vreme cat acestea sunt in proprietate privata si nu fac obiectul investitiilor din fonduri publice.

Costurile estimate pentru sistemul de transport este de aproximativ 0.42 miliarde Euro, in cea mai mare parte din fonduri publice.

Investitiile in facilitatile de productie sunt estimate la aproximativ 1.7 miliarde Euro:

- Panouri solare - 611 milioane Euro din care aproximativ 407 milioane Euro vor fi asigurati de Guvern in baza schemei de suport financiar pentru energia solara. Restul este investitia concesionarilor.
- Cazane pentru acoperirea varfului de consum – 90 milioane Euro investitie asigurata de concesionari.
- Unitatile de cogenerare descentralizate – 400 milioane Euro investitie asigurata de concesionari pentru instalarea si operarea unitatilor
- Facilitati de incinerare a deseurilor – 600 milioane investitie asigurata de concesionari.

Calcululele sunt prezentate in Partea C Anexa 10a .

### Observatia 2.11.3

Structura de productie, pe surse, avuta in vedere este: 40% energie solara, 20% deseuri, 20% CET-uri descentralizate pe biocombustibil, 10% CAF-uri pe biocombustibil, 10% alte surse neconventionale. Va rugam sa clarificati la ce perioada se refera aceste procente. Care va fi structura iarna, cand o lunga perioada nu va fi soare? Se vor mari procentele la sursele pe biocombustibil sau se vor realiza surse pe gaz?

**Answer 2.11.4:**

The values mentioned are annual values.  
The solar systems are considered having no or only a very little capacity value. Thus, the capacity balances for 2020 are outlined as (MJ/sec):

	Summer	Winter
Centralised production	0	300
Decentralised production	0	400
Solar energy (incl. Heat storage)	450	50
Heat-only-boilers	0	700
Other sources	50	50

We expect that the price of bio fuel will be attractive from 2020 when the energy taxes reaches the EU level of 30% or even more and when a take-or-pay clause is introduced for natural gas. Thus, decentralized CHP and heat only boilers will use bio fuels (not bio mass) after 2020.

**Observation 2.11.5:**

Indicate how the proposed solutions for the reconstruction of heating system take into consideration the configuration of basement blocks built in Bucharest, to be supplied by thermal modules connected to the new heating.

**Answer 2.11.5:**

We see no general problem in installing heating units in the basements of the apartment blocks.

**Observation 2.11.6:**

We request clarification of aspects regarding the investments made to date and outstanding and ongoing investments financed from loans , from the municipality or local budget. The PHARE study recommended modernization of the heating system as current concept with an estimated investment volume of around 3 billion, including new CHP on current locations. It started a number of investment on the current concept (modernization and control system of thermal substations, new primary networks, new cogeneration units, etc.) that have a high payback period (approximately 20 years) and supply to a large area (the rehabilitated thermal substation are all over the city). We are asking for clarification on how will be integrated the new solutions into ongoing investments.

We are asking for clarification related the new investments from chapter B on the approved investment plan (attached).  
The Plan for optimal staging of the actions, provided by the terms of reference should be detailed and

**Raspuns 2.11.4:**

Valorile mentionate sunt valori anuale.  
Sistemele solare sunt considerate a nu avea valoare de capacitate sau o capacitate foarte mica. Astfel echilibrul capacitatilor in 2020 este prezentat mai jos (MJ/s):

	Vara	Iarna
Producere centralizata	0	300
Producere descentralizata	0	400
Energie solara (incl. acumulare)	450	50
Cazane	0	700
Alte surse	50	50

Ne asteptam ca pretul pentru biocombustibili sa devina atractiv dupa anul 2020 atunci cand taxele pe energie nivelul din tarile UE de 30% sau mai mult si cand se va introduce o clauza pentru gazele naturale de asigurare a capacitatii. In acel moment, dupa anul 2020, unitatile de cogenerare descentralizate si cazanele vor utiliza biocombustibili (si nu biomasa).

**Observatia 2.11.5:**

Solicitam sa se precizeze modul in care solutiile propuse pentru reconstructia sistemului de termoficare tin seama de configuratia subsolurilor blocurilor construite in Bucuresti, ce urmeaza a fi alimentate prin module termice racordate la noile retele termice

**Raspuns 2.11.5:**

Nu consideram ca existe probleme generale la instalarea modulelor termice la subsolul blocurilor.

**Observatia 2.11.6:**

Solicitam clarificarea aspectelor privind investitiile facute pana in prezent si neamortizate, precum si investitiile aflate in curs de finantare din contractele de imprumut extern ale municipalitatii sau finantate de la bugetul local. Prin studiul PHARE s-a recomandat modernizarea sistemului de termoficare pe actuala sa structura estimandu-se un volum investitional de circa 3 miliarde euro, inclusiv CET-uri noi pe actualele amplasamente. Este inceput un numar important de investitii pe actualul concept (modernizari si automatizari de puncte termice, retele primare noi, grupuri de cogenerare noi, etc) care au o perioada de amortizare mare (aproximativ 20 ani) si care deservesc o arie mare (punctele termice modernizate se refera la majoritatea suprafetei orasului). Solicitam clarificari privind modul de integrare a solutiilor noi pe lucrarile demarate

Solicitam clarificari privind realizarea investitiilor noi cuprinse la capitolul B in planul de investitii aprobat (anexat)

clarified regarding the approach of investments (technical, stages), taking into account all above mentioned. The costs of rebuilding the heating system were taken into account the costs of decommissioning of the existing installations and road rehabilitation costs? Please clarify!

**Answer 2.11.6:**

The proposed concept for changes is the same as in the PHARE Study: "Change when worn-out".

As long as RADET is not able to control the water losses, perform no preventive maintenance work and empty the heating distribution pipes the lifetime will not be longer than until 2020 for main components. For control valves and similar equipment the lifetime can at no circumstances be considered more than 10-15 years. Constantly improvement of pump efficiencies and changes in pumping requirements will in many situations make it feasible to change pumps after 10-12 years considering.

As far as the investments are used for oversized pipes and control valves etc the investments should be considered lost. However, to utilize that present installed capacities we propose to join more distribution areas in the future.

**Observation 2.11.7:**

Please review the implications (including costs) of the radical changes of the system in terms of electrical energy (balance production, existing networks, etc.) and gas networks, water networks to be modified (it is recommended that further to go on bio-fuels). The terms of reference required to be performed the cost-benefit analysis for the proposed solutions on the production systems, transmission and distribution of electricity. Also by the terms of reference is required considerations on effective system for water and sewer based on cost-benefit analysis. The costs of changing to other networks (electricity, gas, water) should be considered when determining the total amount of investment. So, please tell us how will influence the new decentralized CHP's and HoB's designed by new capabilities on the gas networks, electricity, etc. and their related costs

**Answer 2.11.7:**

The electricity tariff will be the same in Bucharest as it is in the rest of Romania or for that matter the same as in the Balkan region.

The purpose of opening the electricity market is that

Planul de esalonare optima a actiunilor, prevazut prin termenii de referinta trebuie detaliat si clarificat cu privire la modul de abordare (tehnice, etapizare) a investitiilor, tinand seama de cele mai sus mentionate. In costurile privind reconstrucia sistemului de termoficare au fost luate in calcul costurile cu dezafectarea instalatiilor existente precum si costurile cu reabilitarea drumurilor? Va solicitam clarificari

**Raspuns 2.11.6:**

Conceptul propus pentru inlocuire a ramas acelasi ca si in studiul PHARE: "inlocuire cand este uzat"

Atata vreme cat RADET nu este capabil sa controleze pierderile de agent termic, nu realizeaza lucrari de intretinere preventiva si goleste sistemul de distributie, durata de viata a celor mai importante componente nu va fi mai mare de 2020. Pentru vanele de reglaj si echipamente similare, durata de viata in nici un caz nu poate depasi 10-15 ani. Imbunatatirea constanta a eficientei pompelor si modificarea cerintelor pentru pompare face ca in anumite circumstante sa fie mai fezabil inlocuirea lor dupa 10-12 ani.

Atata vreme cat investitiile sunt utilizate pentru supradimensionarea conductelor si a vanelor de reglaj, etc., investitiile ar trebuie considerate ca si pierdute. Totusi, pentru a capacita instalatiile aflate in prezent, va propunem ca in viitor sa comasati mai multe arii pe distributie.

**Observatia 2.11.7:**

Va rugam sa analizati implicatiile (inclusiv costurile) modificarii radicale a sistemului in ceea ce priveste energia electrica (balanta producerii, retele existente, etc) retelele de gaze si retelele de apa care ar trebui modificate (se recomanda ca ulterior sa se treaca pe biocombustibili). Prin termenii de referinta se solicita analiza cost-beneficiu a solutiilor propuse pentru sistemele de productie, transport si distributie a energiei electrice. De asemenea prin termenii de referinta se solicita consideratii privind solutii eficiente pentru sistemul de alimentare cu apa si canalizare pe baza analizei cost-beneficiu. Costurile modificarii celorlalte retele (electrice, gaze, apa) ar trebui avute in vedere la stabilirea valorii totale a investitiei.

Astfel, va rugam sa ne precizati modul in care noile CET-uri descentralizate si CAF-uri prin noile capacitati proiectate, vor modifica retelele de gaze, electrice, etc si costurile aferente acestora

**Raspuns 2.11.7:**

Tariful pentru electricitate va fi acelasi in tot Bucurestiul, ca de altfel in restul tarii si mai mult acelasi pentru toata regiunea Balcanilor.

Motivul pentru care a fost dechisa piata de



energy shall flow from areas with low costs to areas with high costs and thus leveling the prices in the system.

Changing the water supply for local preparation of hot tap water is in general no problem as the water consumption has been significantly reduced after introduction of metering leaving sufficient capacity in the local system.

The supply conditions for natural gas must be one of the parameters used for determine the locations of the peak-load boilers.

electricitate a fost acela ca energia sa poata migra din zone in care ea se produce ieftin catre zone in care producerea este scumpa.

Inlocuirea retelelor de apa potabila pentru prepararea apei calde la nivel local nu reprezinta o problema atata vreme cat consumul de apa rece s-a redus dupa contorizare, avand o capacitate suficienta in sistemele locale.

Conditii de furnizare pentru gazul natural ar trebui sa fie unul dintre parametrii utilizati la stabilirea locatiilor pentru cazanele de acoperire a varfului de consum.

#### **Observation 2.11.8:**

Please clarify these aspects of bio- fuel sources:

1. What type of fuel is provided for the decentralized CHP's and HoB's?
2. If the evaluation of investments for production include the producing their own bio-fuel. Where is forecasted to be the bio-fuel production source?
3. What storage spaces are required for tanks for bio-fuel from CHP's and HoB's? (storage capacity are needed in order to study the possibility of location in the decentralized units)
4. Evaluation of the investments in CHP's on bio-fuel includes all equipment, or just to replace the burners (gas decentralized adaptations of plants)

#### **Answer 2.11.8:**

1. In a short-term perspective mainly natural gas with oil as back-up, where necessary. In a longer perspective bio fuel (liquid or bio gas).
2. Bio fuel is traded as all other fuels. Romania currently export raw materials for production of bio fuels and the first plant for production is already establish in Romania.
3. Supply of bio fuel is assumed contracted with a supplier having a centralized storage outside Bucharest. Thus, the local storage can be limited to few days of production. Below is shown a calculation example for a 3 MW/3MJ/sec CHP unit:

#### **Observatia 2.11.8:**

Va rugam sa ne clarificati urmatoarele aspecte referitoare la sursele pe biocombustibil:

1. ce tip de combustibil se prevede la CET-urile descentralizate si la CAF-uri?
2. daca evaluarile privind sursele de productie cuprind si investitiile in producerea propriu zisa a biocombustibilului. Unde se evalueaza a fi sursa de productie a biocombustibilului?
3. Ce spatii de depozitare sunt necesare pentru gospodariile de biocombustibil la CET-uri si CAF-uri? (capacitati necesare de depozitare, pentru pentru a se putea studia posibilitatile de amplasare in unitatile descentralizate)
4. evaluarea investitiilor in CET-uri pe biocombustibil cuprinde intregul echipament al centralei sau doar inlocuirea arzatoarelor (adaptari ale centralelor descentralizate pe gaz)

#### **Raspuns 2.11.8:**

1. In perspectiva pe termen scurt in principal gazele naturale si petrolul ca si rezerva, unde este necesar. Intr-o perspectiva pe termen lung biocombustibil(lichid sau gaz).
2. Biocombustibilul este comercializat ca si oricare alt tip de combustibil. In prezent Romania exporta materie prima pentru producerea biocombustibilului si prima fabrica de productie este deja in functiune in Romania.
3. Furnizarea biocombustibilului se va contracta cu un furnizor care va avea un depozit central in afara Bucurestiului. Astfel, depozitele locale pot fi limitate astfel incat sa asigure producerea pentru cateva zile. Mai jos sunt prezentate exemple de calcul pentru o unitate de cogenerare cu 3 MW/3MJ/s :

**Calculation on 100% load**

Power generation	MW	3.00
Heat production	MJ/sec	3.00
Overall efficiency	%	0.95
Heating value	GJ/m3	36.00
Fuel consumptopn	GJ/h	22.74
	m3/h	0.63
	m3/day	15.16
	m3/4 days	60.63
Truck transport	m3/truck	20.00
	truck/day	0.76

4. The CHP plant shall be specified able to run on natural gas and/or bio fuel. The estimated costs include this facility including storage for the bio fuel. However, the estimate assumes the CHP units installed in/at the present substations where connection to utilities are already available.

**Calculatie la 100% incarcare**

Generare electricitate	MW	3.00
Producere incalzire	MJ/s	3.00
Eficienta generala	%	0.95
Coeficient caloric	GJ/m3	36.00
consum de combustibil	GJ/h	22.74
	m3/h	0.63
	m3/zi	15.16
	m3/4 zile	60.63
Transport cu camion	m3/camion	20.00
	camion/zi	0.76

4. Unitatile de cogenerare trebuie specificate astfel incat sa fie capabile sa functioneze atat pe gaze naturale cat si pe biocombustibil. Costurile estimate includ aceste unitati impreuna cu facilitati pentru depozitarea biocombustibilului. Totusi, estimarea considera ca unitatile de cogenerare se vor instala in/la nivelul punctelor termice existente unde conectarea la utilitati este posibila.