

MINISTRY OF ECONOMY



**STATEMENT ON THE SECURITY OF SUPPLY FOR
NATURAL GAS IN THE REPUBLIC OF MACEDONIA**



Skopje, August 2016

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LIST OF ABBREVIATIONS

CEE	<i>CENTRAL AND EASTERN EUROPE</i>
CIS	<i>COMMONWEALTH OF INDEPENDENT STATES</i>
CPC	<i>COMMISSION OF PROTECTION OF COMPETITION</i>
CRES	<i>CENTRE FOR RENEWABLE ENERGY SOURCES AND SAVINGS</i>
DSO	<i>DISTRIBUTION SYSTEM OPERATOR</i>
ED	<i>ENERGY DEPARTMENT</i>
EBRD	<i>EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT</i>
EC	<i>EUROPEAN COMMISSION</i>
ECS	<i>ENERGY COMMUNITY SECRETARIAT</i>
ECT	<i>ENERGY CHARTER TREATY</i>
EE	<i>ENERGY EFFICIENCY</i>
EEAP	<i>ENERGY EFFICIENCY ACTION PLAN</i>
EIHP	<i>ENERGY INSTITUTE HRVOJE POŽAR</i>
ERC	<i>ENERGY REGULATORY COMMISSION</i>
ESCO	<i>ENERGY SERVICE COMPANY</i>
ESIA	<i>ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT</i>
EU	<i>EUROPEAN UNION</i>
EUD	<i>EUROPEAN UNION DELEGATION</i>
GDP	<i>GROSS DOMESTIC PRODUCT</i>
GEF	<i>GLOBAL ENVIRONMENTAL FACILITY</i>
GHG	<i>GREENHOUSE GASES</i>
Government	<i>GOVERNMENT OF REPUBLIC OF MACEDONIA</i>
HR	<i>HUMAN RESOURCES</i>
HRM	<i>HUMAN RESOURCES MANAGEMENT</i>
IEA	<i>INTERNATIONAL ENERGY AGENCY</i>
IPA	<i>INSTRUMENT FOR PRE-ACCESSION ASSISTANCE</i>
IRR	<i>Internal rate of return of an investment</i>
IT	<i>INFORMATION TECHNOLOGY</i>
Ktoe	<i>1000 tons of oil equivalent</i>
MANU	<i>MACEDONIAN ACADEMY OF SCIENCES AND ARTS</i>
MoE	<i>MINISTRY OF ECONOMY</i>
Mtoe	<i>MILLION TONNES OF OIL EQUIVALENT</i>
NGO	<i>NON GOVERNMENTAL ORGANISATION</i>

NPV	<i>NET PRESENT VALUE OF THE CASH FLOW OF AN INVESTMENT</i>
OECD	<i>ORGANISATION OF ECONOMIC COOPERATION AND DEVELOPMENT</i>
PA	<i>PUBLIC ADMINISTRATION</i>
PPP	<i>PUBLIC-PRIVATE PARTNERSHIP</i>
SAA	<i>STABILISATION AND ASSOCIATION AGREEMENT</i>
SE	<i>SUSTAINABLE ENERGY</i>
SEA	<i>SECRETARIAT FOR EUROPEAN AFFAIRS</i>
TSO	<i>TRANSMISSION SYSTEM OPERATOR</i>
TPES	<i>TOTAL PRIMARY ENERGY SUPPLY</i>
TPP	<i>THERMAL POWER PLANT</i>
UN	<i>UNITED NATIONS</i>
UNDP	<i>UNITED NATIONS DEVELOPMENT PROGRAMME</i>
UNIDO	<i>UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION</i>
USAID	<i>UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT</i>
WB	<i>WORLD BANK</i>

1. LEGAL REGULATION ON SECURITY OF SUPPLY

1.1 ENERGY LAW

Scope of the Energy Law

The Law on Energy (Official Gazette of Republic of Macedonia No. 16/2011, 136/2011, 79/2013, 164/2013, 41/2014, 151/2014 and 33/2015) is the primary piece of legislation that regulates the domestic energy sector. The Energy Law is presently updated within the framework of the EU/IPA Project for strengthening the administrative capacities of the Energy Department in the Ministry of Economy and the Energy Agency of Republic of Macedonia in order to be aligned with the prerogatives of the Third EU energy package on electricity and gas (Directives 2009/73/EC 2009/72/EC and Regulations (EC) 714/2009 and 715/2009), the Directive 2009/28/EC “on the promotion of the use of energy from renewable sources” and the Directives 2004/67/EC and 2005/89/EC.

The Energy Law governs:

- energy policy objectives and its enforcement;
- energy activities and the manner of regulation of energy activities;
- the construction of energy facilities;
- the status and competences of the Energy Regulatory Commission of the Republic of Macedonia;
- the electricity market;
- the natural gas market;
- the crude oil, oil derivatives and fuels for transport market;
- the heating energy market;
- energy efficiency requirements and the promotion of the use of energy from renewable sources; and
- other issues of importance in the energy field.

Objectives of the Energy Law

The Energy Law purports to ensure:

- securing reliable, safe and quality energy and energy fuel supply to consumers;
- establishment of an efficient, competitive and financially sustainable energy sector;
- encouraging competition on energy markets with respect for the principles of non-discrimination, objectivity, and transparency;
- integration of Republic of Macedonia's energy markets into the regional and international energy markets, pursuant to the commitments assumed under the ratified international treaties;
- increasing energy efficiency and promotion of the use of energy from renewable sources; and
- environmental protection from the adverse effects of particular activities in the energy field.

Objectives of the energy policy

In accordance with Article 9 of the Energy Law, the energy policy, which is set forth in the National Strategy on Energy Development, is geared towards securing:

- the reliable, safe and quality supply to consumers with all types of energy and energy fuels;
- the establishment of transparent and stable terms and conditions for competitive and economically viable energy sector;
- the promotion of market competition in energy services provision, based on the principles of non-discrimination and transparency;
- the efficient service provision to consumers,
- the integration of the Republic of Macedonia's energy markets into the regional and international energy markets;
- the use of energy sources in a manner that provides sustainable energy development;
- the promotion of energy efficiency;
- the promotion of the use of renewable energy sources;
- the environmental protection from the adverse effects of energy activities performance;
- the fulfilment of commitments assumed under the ratified international documents; and
- measures aimed to protect citizens from energy poverty.

Additionally, ERC under the CESEC Initiative and in cooperation with the Energy Community Secretariat started activities for preparation of secondary legislation related to transposition of the Third energy package and in the reporting period prepared a draft Rulebook for Certification of electricity and gas TSOs.

1.2. ENERGY REGULATORY COMMISSION

The **Energy Regulatory Commission** is the single legal entity that regulates issues pertaining to the performance of energy activities and which is an independent body in terms both of its operation and decision-making. The Energy Regulatory Commission (ERC) was established by the Law for amending the Energy Law (Official Gazette 94/2002) and became operational in 2003. The ERC is composed of five members, one of which acts as its president. The members and the president of the ERC are appointed and dismissed by the Parliament of the Republic of Macedonia, upon proposal of the Government of the Republic of Macedonia, after taking in consideration the adequate and just representation of all communities.

Competences of the Energy Regulatory Commission

According to the Energy Law, for the purpose of securing the efficient, competitive and uninterrupted operation of energy markets, the ERC has the following competences:

- 1) to monitor the operation of energy markets, for the purpose of securing reliable energy and energy fuel supply;
- 2) to adopt regulations and tariff systems and to adopt or approve tariff-setting methodologies for regulated energy activities;
- 3) to adopt regulations, price setting, and tariff system methodologies on relevant energy type and/or energy fuel delivery to final customers;
- 4) to adopt decisions on prices and tariffs, based on relevant regulations, methodologies and tariff systems;
- 5) to adopt regulations on price-setting methodology for oil derivatives and fuels for transport and price-setting decisions for oil derivatives and fuels for transport,

- pursuant to the commitments assumed by the Republic of Macedonia;
- 6) to approve the Grid Codes adopted by the energy system operators, after taking into consideration of their compliance with the commitments the Republic of Macedonia has assumed under the international treaties or the commitments of the energy system operators stemming from their membership in international associations;
 - 7) on the proposal from the relevant energy system operators, to approve the terms and conditions and connection and access charges for relevant transmission and distribution systems;
 - 8) to adopt Electricity Supply Rules, Heating Energy Supply Rules, and Natural Gas Supply Rules;
 - 9) to adopt Rules on Electricity Supply of Last Resort and Natural Gas Supply of Last Resort;
 - 10) to adopt the Electricity Market Code and the Natural Gas Market Code;
 - 11) when needed, to request relevant system operators or electricity market operator to change terms and conditions, tariffs, rules, mechanisms and methodologies governing the connection to, access to, balancing, or use of relevant systems or market;
 - 12) to take decisions upon applications submitted for exemption from the obligation on allowing third party access to energy systems or new interconnection gas pipelines;
 - 13) to keep the Registry of Preferential Generators and adopt decisions on awarding the status of preferential generator;
 - 14) to take due care for the protection and promotion of rights of energy and energy fuel consumers and of energy system users;
 - 15) to propose measures aimed to encourage competition on energy markets;
 - 16) to stipulate the terms and conditions, manner and procedure and adopt decisions on issue, amendment, transfer, suspension, revocation and termination of separate energy activity licenses and to monitor the implementation of obligations stipulated in the energy activity licenses issued;
 - 17) to approve transmission and distribution grid development and construction plans and monitor their timely adoption and implementation;
 - 18) to approve and monitor the implementation of compliance programmes adopted by relevant energy system operators, by means of which they secure full legal, financial, management and operational independence of operation from the vertically integrated energy companies to which they belong, as well as from related energy companies;
 - 19) to resolve disputes occurred between entities performing regulated energy activities and their users, including cross-border disputes;
 - 20) to cooperate with competent state authorities, local self-government unit bodies, entities performing energy activities, energy users and other organizations and institutions;
 - 21) to submit proposals to competent authorities on taking measures pursuant to their competences and in a procedure stipulated by law, against entities performing their activities in violation to the present law;
 - 22) to raise initiatives and propose adoption of new and amendments to existing laws and other regulations in the energy field;
 - 23) to participate in relevant regional and international organizations and cooperate with other regulatory bodies, for the purpose of contributing to development of regional energy markets, pursuant to the commitments assumed under the ratified international treaties;
 - 24) to adopt the Book of Operation and other internal acts related to its operation; and
 - 25) to perform other matters pursuant to a law.

Monitoring functions of the Energy Regulatory Commission

Under the Energy Law, the ERC, for the purpose of securing efficient performance of its competences related to the operation of energy markets, is charged with the overall

supervision of the energy sector by monitoring in particular:

- 1) the implementation of legally stipulated obligations of any entities performing regulated energy activities related to securing the reliability of electricity, natural gas and heating energy supply;
- 2) the operation of energy markets, for the purpose of securing their promotion, as well as for the purpose of securing non-discrimination, effective competition, transparency and efficient operation of markets;
- 3) the application of rules governing interconnection allocation and congestion management in the electricity and natural gas transmission systems, based on the commitments assumed by the Republic of Macedonia under the ratified international treaties;
- 4) the use of income generated from congestion management in the electricity and natural gas transmission systems;
- 5) the time needed by transmission and distribution system operators to perform connections and repairs;
- 6) the timely announcement of relevant information held by transmission and distribution system operators related to interconnections, grid use and capacity allocation to interested parties, taking due consideration of the need for individual information to be treated as commercially confidential;
- 7) the changes in the ownership structure of entities performing energy activities and submit proposals to competent state authorities on measures aimed to protect and promote competition on energy markets;
- 8) the application of tariff systems and stipulated tariffs;
- 9) the application of terms and conditions for connection of new generation facilities, taking due consideration of the costs and benefits related to different technologies on renewable energy sources, embedded generation and cogeneration of heating energy and electricity;
- 10) the operation of license holders as regards their obligations stipulated in the licenses issued;
- 11) the quality of services provided by license holders;
- 12) the effective unbundling of accounting records pursuant to the present law, for the purpose of avoiding cross-subsidies between energy o
- 13) r natural gas generation, transmission, distribution and supply activities and for the purpose of eliminating cross-subsidies between consumer groups and transfer of income and costs for the performance of regulated and/or non-regulated energy activities; and
- 14) the implementation of compliance programmes adopted by relevant energy system operators, by means of which they should secure full legal, financial, management and operational independence from the vertically integrated companies to which they belong, as well as from related energy companies, for the purpose of securing non-discrimination, transparency and objectivity in the operation of energy markets.

1.3. COMMISSION FOR PROTECTION OF COMPETITION (CPC)

The CPC is the competent authority for enforcing the Law on the Protection of Competition, which was adopted in January 2005. The CPC is an independent body in terms both of its operation and decision-making that has the status of a legal entity and which is composed of its President and four Members, who are appointed by the Parliament of the Republic of Macedonia for the period of 5 years. The President and at least two members of the CPC are professionally engaged in the CPC's work. Within the CPC the expert, normative legal, administrative, administrative-supervisory, financial, accounting, IT, and other activities of the CPC are performed by qualified supporting staff, who are organised in four departments (with two units in each department).

The basic competencies of the CPC are:

- to supervise the application of the provisions stipulated in the Law on the Protection of Competition,
- to monitor and analyse the conditions on the market (including the energy markets) to the extent necessary for the development of free and efficient competition,
- to conduct investigations; and
- to make decisions according to the provisions of the Law on the Protection of Competition.

In addition, from June 2006 the CPC is the competent authority for the monitoring and the control of state aid.

As such, the main responsibilities of CPC are:

- the appraisal of concentrations according to the Law on Protection of Competition;
- the appraisal of the compatibility of any proposed state aid according to the Law on State Aid Control;
- the investigation of any alleged anti-competitive practices; and
- the conduct of infringement procedures and the impositions of fines in cases of any restrictive agreements and/or any abuse of dominant position according to the Law on Protection of Competition.

Additionally, the CPC provides written opinions upon draft laws and other acts that regulate issues pertaining to the economic activity and which may influence the competition on the domestic market. Furthermore, upon the making of any relevant request by the Parliament, by the Government of the Republic of Macedonia, by other state authorities, or by undertakings, or *ex officio*, the CPC may provide expert opinions on issues in the areas of competition policy, the protection of competition on the market and the granting of state aid.

1.4. PUBLIC SERVICE OBLIGATIONS

An obligation on public service provision is defined in the Energy Law as one or more obligations imposed to the entities performing regulated energy activities for the purpose of public interest realization pursuant to the present law, and related to safety, including the reliability of supply, service affordability for users at all times, energy or energy fuel quality and price, services, as well as environmental protection, including energy efficiency and climate change protection.

As regards the description of a “*regulated energy activity*”, such an activity is defined as an energy activity by means of which the public service is provided and performed under terms and conditions, manner, prices and tariffs stipulated, i.e., approved by the Energy Regulatory Commission.

In the Energy Law, the following activities are regulated activities and the entities performing these activities are subject to public service obligations:

- electricity transmission;
- electricity market organization and operation;
- electricity distribution;
- natural gas transmission;
- natural gas transmission system operation;
- natural gas distribution;
- heating energy distribution;
- electricity supply of last resort; and
- natural gas supply of last resort.

Also, electricity generation for the needs of the electricity supplier of last resort is

currently deemed regulated energy activity.

The Energy Law also states that entities performing regulated energy activities shall be obliged to comply with the obligations on public service provision. The Energy Regulatory Commission determines or approves the prices, terms, and conditions for public service provision. Any additional obligations on public service provision, imposed by the Energy Regulatory Commission, must be clearly stipulated, easily verifiable, and non-discriminatory, while such additional obligations should be determined in the relevant licence and published on the website of the Energy Regulatory Commission.

The Energy Law further stipulates that the services provided by entities performing regulated energy activities shall secure reliable, quality and uninterrupted energy and energy fuel delivery to consumers, under equal terms and conditions, prices and tariffs, after taking into consideration the need for energy efficiency improvements and environmental protection and promotion. The licence on the performance of a regulated energy activity must indicate the volume and contents of services stipulated under the present law, the service area where public services are provided, as well as the duration of the obligation on public service provision. In addition, prices and tariffs governing the provision of public service obligations should secure recovery of justifiable costs and reasonable return of capital for the entities performing regulated energy activities as regards their relevant public service provision, including the costs on efficient use of energy resources and environment protection and promotion.

It is also stated that, when the entities performing energy activities and being subject to an obligation on public service provision are awarded financial reimbursement, other form of reimbursement and/or exclusive rights, for the purpose of implementing the obligations defined under the present law, this should be done in a transparent and non-discriminatory manner. Moreover, any reimbursements awarded must not exceed the costs incurred for the public service provision, decreased by the income generated from the service provision.

Furthermore, the Energy Law provides that the entities performing energy activities and being subject to the obligation on public service provision can be awarded state aid, pursuant to the State Aid Law. The legal entity performing one or more regulated energy activities cannot perform another energy activity or other activity, unless otherwise stipulated under the present law. In the cases when a legal entity performs one or more regulated energy activities or one or more energy activities and another energy activity or another activity, it shall be obliged to keep separate accounting for each regulated energy activity. For non-regulated energy activities or for other activities performed, the legal entity can keep consolidated accounting records. Added to this, a legal entity performing regulated energy activity is obliged to submit the Energy Regulatory Commission the audited annual financial reports and must publish them on its website. The relevant financial reports are required to be submitted and published for each regulated energy activity separately, whereas for non-regulated and other activities, the financial report submitted to the Energy Regulatory Commission can be forwarded in a consolidated form.

1.5. NATURAL GAS SUPPLIERS OF LAST RESORT

The Energy Law defines the Electricity Supplier of Last Resort and Natural Gas Supplier of Last Resort. **Natural gas supplier of last resort** is a natural gas supplier that provides the public service on natural gas supply to consumers connected to the natural gas system in the cases stipulated under the law.

The natural gas supplier of last resort is obligated to secure supply to consumers connected to the natural gas transmission or distribution system, for exercising their right to natural gas supply at all times, under reasonable and clearly comparable and transparent prices set by the Energy Regulatory Commission. Added to this, the suppliers of last resort are

required to provide this public service and are obliged to secure electricity or natural gas supply to households or small consumers that have not signed contracts with any of the suppliers, or if their previous suppliers have discontinued the implementation of obligations assumed under the supply contracts. Lastly, it is stipulated that, in the case of electricity or natural gas supply of last resort to consumers, such supply shall be performed under approved and controlled prices that shall not prevent competition and normal operation of electricity and natural gas markets.

In 2015, there was no case of a request by a customer to be supplied by the supplier of last resort (Promgas) at regulated prices.

1.6. ENERGY SECURITY

The safeguarding of the security of energy supplies is one of the key aims of the Energy Law: Article 7 expressly states that reliability of the relevant energy type or energy fuel supply shall be secured, in particular, by means of:

- achieving supply and demand balance on the relevant energy type market;
- forecasting the level of expected future demand for a particular energy type and the possibilities to address the forecasted demand with the available energy sources and facilities;
- undertaking measures to construct new energy facilities;
- quality and high level maintenance of relevant energy type transmission and distribution grids; and
- measures to address peak loads and contingency measures in the cases of failure to provide relevant energy type delivery.

The Energy Law further compels State authorities and entities performing regulated energy activities, as part of their stipulated rights, obligations and competences, to propose and undertake measures aimed to secure reliability of energy supply.

Also, the Energy Regulatory Commission is charged with the supervision of the compliance of entities performing regulated energy activities with the obligations on securing reliability of supply, and in its annual report is required to include data related to:

- reliability of the system operation;
- five-year energy balance;
- possibilities to secure reliable energy supply in the period of five to fifteen years after the year for which the report is prepared; and
- possible investments in interconnection capacities for the next five years.

1.7 ENERGY BALANCE

Article 12 of the Energy Law provides that the Government of the Republic of Macedonia by means of the energy balance for period of one (1) year as indicative plan document determines the total needs of energy and the need of certain types of energy, as well as the possibilities for their satisfaction from domestic generation and from imports. The energy balance is adopted by the Government of the Republic of Macedonia, on the proposal of the Ministry and upon previously obtaining the opinion of the Energy Regulatory Commission, by the end of each calendar year.

The Ministry of Economy, which is in charge of energy affairs, is responsible for monitoring the realization of the energy balance for the current year, and, if necessary, can propose adequate measures to the Government of the Republic of Macedonia. Furthermore,

as required by the Energy Law, the Minister of Economy has adopted the Rulebook on Energy Balances and Energy Statistics, which stipulates:

- ❖ the contents of energy balances;
- ❖ the contents, manner, and deadline for submission of data required for the development and monitoring of energy balances implementation;
- ❖ the contents, manner and deadline for submission of data required for the preparation of the Strategy on Energy Development and for the development and monitoring the outcomes of the Strategy's Implementation Program; and
- ❖ the bodies within the state administration and within the local self-government units, license holders on energy activities, as well as energy and energy fuel final customers that will be required to submit data required for development and monitoring of energy balances implementation, as well as the deadlines on data submission.

The entities referred to in this Rulebook are obliged - in the request from the Ministry - to submit data for the development and monitoring of energy balances and data required for the preparation of strategies, programs and reports on implementation programs, whose adoption has been stipulated under the Energy Law.

1.8. ACTS FOR DECLARATION OF CRISIS

One of the principal priorities of the Government of Republic of Macedonia in the energy sector is connected with need to ensure the national goal of security of energy supplies and to tackle any unexpected event, which might jeopardise the reliability and security of energy supplies. For this purpose, Article 13 of the Energy Law states that, on the proposal from the Ministry, by means of an act, the Government of the Republic of Macedonia shall stipulate in detail:

- the criteria and terms and conditions for declaring emergency,
- the manner of relevant energy type supply under such circumstances,
- measures to be taken in cases of emergency, and
- the rights and obligations of license holders on energy activity performance, pursuant to the Law on Emergency Situation Management.

Moreover, in order to protect energy systems and secure reliability of relevant energy type supply in the Republic of Macedonia, the relevant energy or energy fuel transmission and distribution system operators are obliged, pursuant to this act, to develop contingency plans and submit them to the Ministry of Economy for approval.

It is further stipulated that any measures, which are necessary to eliminate any problems occurred and protect energy markets and energy systems of the Republic of Macedonia in emergency situations, should:

- be of temporary nature,
- last until the end of the emergency; and
- cause the least possible distortion to the energy markets operation in the Republic of Macedonia and in the region.

It is also provided that the Government of the Republic of Macedonia - in compliance with the commitments it has assumed under the ratified international treaties- must duly inform the neighbouring and any other countries that are, or can be, affected by any such emergency measures as well as any competent international institutions and bodies established under any ratified international treaties.

In compliance with Article 13 of the Energy Law, the Government of the Republic of

Macedonia adopted on 16 of October 2013 the Ordinance on the criteria and conditions for the declaration of a natural gas crisis, the manner of supply of natural gas in these conditions, the measures to be taken in the event of a crisis, and the rights and obligations of the licence holders for performing energy activities (Official Gazette of the Republic of Macedonia No. 143/2013). This Ordinance, which implements the provisions of the Directive 2003/55/EC concerning the specific customers (households) and protecting measures during the natural gas crisis, enumerates the protected natural gas consumers as follows:

- households;
- hospitals, clinics and special health institutions (first aid emergency stations, blood transfusion centres, dialysis centres and other health institutions)
- facilities of special interest to the economy, lives of people and defence of the country,
- care centres for elderly persons,
- kindergartens, and
- zoos.

It further sets the criteria for proclaiming crisis situation in supply of NG, namely:

- reduced import,
- extremely low temperatures in uninterrupted duration of five days,
- periods of extremely high consumption of gas during winter months.

Moreover, it obliges natural gas suppliers to lay down in the supply contracts they sign the minimal needed quantities of natural gas. For present purposes, minimal quantities are considered the contracted quantities between the suppliers and consumers. Moreover, the natural gas suppliers of protected consumers are obliged to inform the natural gas traders about the minimal quantities for protected consumers for the subsequent year not later than 1 October (in the current year).

The Ordinance on the criteria and conditions for the declaration of a natural gas crisis also provides for the establishment of a seven-member Commission for crisis situation in natural gas supply that must be set up by the Minister of Economy and which should regularly monitor the situation and recommends the proclamation of a crisis situation. In addition, it sets forth the procedure for the proclamation of a natural gas crisis situation and prioritise any proposed curtailment measures with the aim to ensuring:

- the reduction of natural gas supplies to consumers, who are directly connected to the transmission system,
- the reduction of natural gas natural gas supplies to maintain technical minimum (in the industry),
- the cessation of supplies to consumers, who are directly connected to the transmission system and who have alternatives sources of energy,
- the reduction of natural gas supplies to consumers that are directly connected to the transmission system to maintain minimal production in co-generation facilities (or technical minimum),
- the cessation of supplies to consumers, who are directly connected to the distribution network and who have alternatives sources of energy,
- the reduction of natural gas supplies to consumers that are directly connected to the distribution network to their technical minimum (except for protected consumers),
- the cessation of supplies to consumers natural gas are directly connected to the distribution network (except to those that use it for co-generation),
- the reduction of all NG supplies to the minimum levels of all consumers, except for the protected consumers, and
- the reduction of natural gas supplies to co-generation facilities.

Finally, this Ordinance specifies the rights and obligation of energy license holders in natural gas crisis situations. The most important of these obligations involves the preparation of management plans, which must be submitted by each relevant licence holder to the Ministry

of Economy; the Ministry of Economy is then required to summarise these plans and to submit a consolidated crisis management plan to the Crisis Management Centre.

2. STRATEGY FOR ENERGY DEVELOPMENT

In April 2010, the Government of Republic of Macedonia adopted the Strategy for Energy Development to 2030 that defines the plan for ensuring the long-term development of the energy sector in order to provide a secure supply of energy to the consumers.

In order to meet the objective, the following priorities are identified:

- maintenance and modernization of the existing energy infrastructure;
- construction of new energy production, transmission and distribution facilities;
- improvement of energy efficiency;
- increased use domestic resources (lignite and renewables);
- increased use of natural gas;
- establishment of economic market energy prices;
- integration of the Macedonian energy sector into the regional and European market of electricity and natural gas by constructing new interconnections; and
- harmonisation the legislation with the existing *acquis communautaire* for energy, environment, competition and renewable energy sources.

The Strategy for Energy Development also defines:

- ❖ long-term objectives for security of energy supply;
- ❖ priorities for development;
- ❖ energy resources and facilities of strategic importance;
- ❖ long-term forecasts of investment needs for electrical generation, transmission, and distribution;
- ❖ facilities needed for ensuring that energy demand is met and security of supply is maintained;
- ❖ financial means for implementing the anticipated investment projects;
- ❖ incentives needed for increased energy efficiency;
- ❖ environmental protection measures to be enforced;
- ❖ fulfilment of commitments under international charters, agreements, treaties and conventions;
- ❖ energy market competition;
- ❖ protection of energy consumers; and
- ❖ international connection of the energy systems.

2.1. ENERGY DEVELOPMENT PROGRAMME

The Programme for the Realization of the Strategy for Energy Development 2013 - 2017 was adopted in March 2013. The programme reviews the energy policy of the Government of Macedonia and sets out the basic scenario for all the projects expected to be developed in the period together with the financial means that will be needed and the government departments responsible for their implementation. Where relevant, the latest projects are discussed in each of the electricity, natural gas and oil sectors below.

2.2. ENERGY CONSUMPTION IN THE PERIOD 2000-2014

Over the past 13 years, demand for oil products has increased by 30% and for electricity by nearly 70%. The continuing rise in the demand for these sectors has given increasing importance to the securing of these strategic supplies.

Ktoe	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Coal	104	95	69	138	90	109	136	182	146	68	113	338	128	195	198
Oil	670	587	686	689	707	726	715	776	751	741	837	866	859	874	856
Gas	7	26	32	30	32	33	34	34	31	29	41	43	23	27	33.6
Geothermal	15	21	12	12	11	9	9	9	8	9	10	11	9	8	7.4
Biomass	204	143	141	165	166	151	163	138	169	191	198	189	196	146	169.1
Electricity	448	432	428	490	496	536	554	580	593	550	583	644	602	584	578.6
Heat	153	132	136	128	122	127	118	107	103	99	54	57	52	44	40.4

Source: State Statistical Office

2.3 ENERGY DEMAND IN THE PERIOD 2015 - 2035

According to a recent MANU base line demand forecast for the next 20 years, by 2035 the demand for electricity and oil products will continue to rise and will be accompanied by a ten-fold increase in the usage of imported natural gas. With all oil products and a large proportion of electricity being imported and the production of indigenous lignite increasing only marginally, the implications for security of energy supply are apparent.

The increase in the usage of biomass and renewable energy will have only a marginal positive impact on the security of energy supply.

ktoe	2015	2020	2025	2030	2035
Coal	202	230	247	263	285
Oil	772	840	941	1060	1169
Gas	45	162	258	367	480
Renewables	13	13	16	20	24
Biomass	192	227	239	251	263
Electricity	611	638	702	758	786
Heat	56	52	55	58	58

Source: MANU baseline energy demand forecast for the year 2015-2035

3. MACEDONIAN NATURAL GAS SYSTEM

3.1. REGULATORY FRAMEWORK IN GAS SECTOR

The Energy Law, which was adopted on February 3, 2011 (Official Gazette of Republic of Macedonia 16/2011), as subsequently revised (Official Gazette of Republic of Macedonia 136/2011, 79/2013, 164/2013, 41/2014, 151/2014 and 33/2015), is the key legislative instrument, which regulates the performance of energy activities, including those pertaining to the natural gas sector. The amendments of the Energy Law coupled with the introduction of the relevant secondary legislation (especially the adoption of the market rules for natural gas by the Energy Regulatory Commission in 2014) created the conditions for the opening-up of the domestic natural gas sector and also determined the start date for the liberalization process. More specifically, it was initially agreed that the liberalization of the natural gas market for all customers, except households, will commence in October 1, 2014. However, because of the lack of real competition in the market, which was in large measure owing to the fact that there was only one active natural gas supplier, the date of the start of the liberalization of the natural gas market for all customers, was postponed until 1st of January 2015. The liberalization of the natural gas market for the households also commenced on January 1 2015.

On another plane, given that one of the major challenges facing the Republic of Macedonia revolves around the need to strengthen the use of alternative fuels, important legislative developments have taken place in order to expand the existing natural transmission and distribution networks. In particular, in January 2014 the Law on realization of infrastructure project for the construction of gas pipeline, section Klecovce-Block Stanica 5 was adopted ("Official Gazette of the Republic of Macedonia", No. 13/2014), which gave the green light for the implementation of the infrastructure project for the construction of the gas pipeline, section Klecovce-Block Stanica 5 that is to be financed through funds provided by the "Agreement between the Government of the Republic of Macedonia and the Government of the Russian Federation for regulation of obligation of foreign SSSR upon the calculations related to the stock exchange between foreign SSSR and foreign SFRJ" of 19.06.2010. Added to this, the Ministry of Transport and Communication issued a permit for the construction by the State-owned Joint Stock Company for carrying out of energy activities MAKEDONSKI ENERGETSKI RESURSI (AD MER Skopje) No. 18 Up-241/E of 07.07.2014, as investor, which enables the construction of the Gas pipelines Section 1 Klecovce-Negotino (Kavadarci) and the Main measurement-regulation station (GMRS) Stip and GMRS Negotino. Furthermore, on 21 July 2014 the Ministry of Transport and Communication has signed an agreement for the supervision of the construction of the section Klecovce-Stip-Negotino. AD MER Skopje also signed an agreement on 9 July 2014 with OAO Strojtransgas, Moscow for the construction of section "Klekovce-Blok Stanica 5" and the construction of the section started on 14th of March 2015 and was completed by June 2016.



The Republic of Macedonia also borrowed from Deutsche Bank and Erste Bank loan for financing the project "Gasification of the Republic of Macedonia - Phase 1 - section Stip - Negotino - Bitola (length 127km) and section Skopje - Tetovo - Gostivar "(length 75 km), as the first phase of construction of the national gas transmission system of the Republic of Macedonia. The construction is planned to take place in the period 2016 - 2018. The tenders for construction of the national gas transmission system Phase 1 are finished, agreements were signed and in August 2016 started the construction of the above mentioned lots.



Action Plan for Projects of Phase 1

Sections for which funds have been provided	Construction period			
Valve station 5 – Negotino	2016	2017	2018	
Skopje-Tetovo-Gostivar	2016	2017	2018	2019
Branch to Tetovo	2016	2017	2018	
Neogtino-Bitola	2016	2017	2018	2019

Sections of Phase 1	Construction period				
Stip-Radovis-Strumica-Greek border		2017	2018	2019	2020
Hamzali-Novo selo				2019	2020
Negotino-TEC Negotino		2017	2018		

The second phase of construction of the national gas transmission system of the Republic of Macedonia, sections Stip-Radovis- Hamzali -Strumica- border with Republic of Greece, sections Hamzali-Novo Selo- border with Republic of Bulgaria (134km in length) and Gostivar-TPP Oslomej-Kicevo (length of 39 km) and the rest of the main gas pipelines of the National Gas Pipeline System in the Republic of Macedonia is envisaged to develop in the period 2018 - 2022.

The funds for the construction of the remaining sections of the gas pipeline system of the Republic of Macedonia are expected to be provided by international financial institutions, European Investment Bank, European Bank for Reconstruction and Development and others.

In accordance with the development of international gas pipelines there are several possibilities for interconnection of the gasification system of the Republic of Macedonia, with TESLA, TAP (Trans Adriatic Pipeline) and with neighbors through regional Initiative for gas connection of Central and Southeastern Europe (CESEC).

3.1.1. Secondary Legislation

As stipulated in the Energy Law, a number of secondary legislative acts have been enacted to further formulate and refine the legal regime governing the performance of natural gas activities. In what follows, we shall give a concise account of these acts and the issues they respectively address.

Grid Code for the transmission of natural gas of AD GA-MA

According to the Article 88 of the Energy Law, the natural gas TSO is obliged to adopt and, upon previous approval from the Energy Regulatory Commission, to publish in the "Official Gazette of the Republic of Macedonia" and on its website the Natural Gas Transmission Grid Code, one year after the entry into force the Energy Law.

Because of the *status quo* with the gas TSO, the existing Grid Code for transmission of natural gas was prepared by AD GA-MA, the natural gas transmission system operator, which was approved by the Energy Regulatory Commission on 30th of March 2009 ("Official Gazette of Republic of Macedonia" No 45/2009). However, GAMA did not amend the grid code in order to be in compliance with the Energy law from 2011.

The natural gas transmission Grid Code specifically governs:

- the technical conditions for connecting natural gas distributors, direct customers of natural gas, and other natural gas transmission systems to the natural gas transmission system;
- the technical and other conditions for secure and safe functioning of the natural gas transmission system;
- the transmission system planning, maintenance and development;
- the measures, activities and procedures in cases of the system's breakdown;
- the terms and conditions for third party access to the natural gas transmission system;
- the functional requirements and precision class of measuring devices,
- the natural gas quality standards;
- the criteria for providing system services;
- the natural gas nomination and scheduling procedures; - data collection and communications protocols; and
- the supervision and control of operational management systems.

Tariff system for transmission of natural gas

On 11 January 2013, the Energy Regulatory Commission issued the Tariff System for transmission of natural gas ("Official Gazette of the Republic of Macedonia", No. 7/2013, which sets forth:

- the manner for calculation of the fees that the transmission system users are bound to pay for the use of the natural gas transmission system and transmission grids,
- the manner and conditions for the calculation of the tariff for the transmission of natural gas,
- the tariffs for the management of the transmission system, and
- the categories of users that are directly connected to the natural gas transmission system.

Natural gas supply rules

According to the Energy Law, the ERC issued on 7 of May 2012 the natural gas supply rules("Official Gazette of the Republic of Macedonia" no. 56/12). These rules, which implement provisions of the Directive 2003/55/EC, determine the general terms and conditions governing the supply of natural gas, as well as the mutual rights, obligations and responsibilities of natural gas suppliers, customers, the operator of the natural gas transmission system, and the natural gas distribution system operators.

Tariff system amending the Tariff system for sale of natural gas to tariff customers

On 18 January 2012 the ERC issued the Tariff system amending the Tariff system for sale of natural gas to tariff customers ("Official Gazette of the Republic of Macedonia" no. 9/12). This Tariff system specified the procedure for submitting request for approval of the natural gas sale price on monthly level for tariff customers directly connected to the natural gas transmission system. A subsequent amendment was made by the ERC on 18 of July 2012 ERC ("Official Gazette of the Republic of Macedonia" no. 13/12), which aligned the tariff system with the newly introduced natural gas supply rules and introduced changes regarding

the full recognition of the trade charge.

Rules on natural gas supply of last resort

The ERC issued on 4 May 2012 the Rules on natural gas supply of last resort ("Official Gazette of the Republic of Macedonia", No. 56/2012), which implements provisions of the Directive 2003/55/EC. These Rules lay down the general conditions for natural gas supply of customers, who have decided to be supplied by the natural gas supplier of last resort and further enumerates the mutual rights, obligations and responsibilities of the supplier of last resort, its customers as well as those of the operators of the natural gas transmission and distribution systems.

Tariff system for sale of natural gas to the supplier of last resort

The ERC issued on 11 of January.2013 the Tariff system for sale of natural gas to the supplier of last resort ("Official Gazette of the Republic of Macedonia", No. 7/2013). This Tariff system, whose provisions apply to the licence holders that provide the service of supply of natural gas in last resort as well as to the natural gas consumers, who are being supplied by the suppliers of natural gas in last resort, lays down:

- the manner and conditions for the calculation of the tariff for the supply of natural gas in last resort,
- the charging of the fees for the use of the natural gas transmission and distribution system,
- the methodology for calculating the consumed quantity of natural gas, and
- the methodology for calculation of the fees for the supplier in last resort.

Rulebook for prices of natural gas for the supplier of last resort

On 29 December 2014, the ERC issued the Rulebook for prices of natural gas for the supplier of last resort ("Official Gazette of the Republic of Macedonia", No. 198/2014), which implements provisions of the Directive 2003/55/EC. This Rulebook enumerates the manner and the conditions for setting, approving and controlling the prices pursuant to which the regulated maximum revenue, which is necessary for the performance of the regulated energy activity of natural gas supply of last resort, is realised.

Natural Gas Market Rules

Following lengthy deliberations, the ERC adopted on 24 of January 2014 the Natural Gas Market Rules ("Official Gazette of the Republic of Macedonia", No. 16/2014), which were subsequently revised on 29 September 2014 ("Official Gazette of the Republic of Macedonia", 91/2014). In conformity with Article 90 of the Energy Law, these rules delineate in particular:

- the organization of the natural gas market;
- the terms and conditions required to be met by natural gas market participants;
- the manner and terms and conditions for grouping of natural gas customers and/or sellers into balancing groups for the purpose of reducing balancing costs;
- the rules governing the establishment, organization and control over trading of natural gas and ancillary services, including cross-border trading;

- the methodology for setting the balancing charge and the manner of the charge's collection, as well as the financial guarantees for the liabilities of natural gas market participants related to the settlement of balancing services;
- the procedure on the calculation of deviations between the agreed and realized transactions, based on the metered data from the natural gas transmission system operator and distribution system operators;
- the terms and conditions, the manner and procedure regulating the purchase of natural gas and ancillary services by entities performing regulated energy activities, for the purpose of implementing the purchases in a transparent and non-discriminatory manner, and for securing equal access to all interested domestic and foreign bidders; and
- the procedure and manner of data collection and their submission to the Energy Regulatory Commission as regards the status and events on the natural gas market.

Tariff system for distribution of natural gas

The Energy Regulatory Commission adopted the Tariff system for distribution of natural gas supply on 11 of January 2013, which was published in the "Official Gazette of Republic of Macedonia", No 19/2013. This Tariff system enumerates the formulas for calculating the consumer fees for the use of the natural gas distribution system, the manner and conditions for the calculation of the tariff for the distribution of natural gas, as well as the categories of users that may be directly connected to the distribution system. The Tariff system defines four categories of users of the natural gas distribution system:

- producers of heat energy that are under an obligation for public service provision,
- combined heat-power plants,
- households, and
- other consumers, who are using the relevant natural gas distribution system.

The ERC sets the tariffs for distribution of natural gas for each distribution system for a period of one year. Each category is linked to a specific tariff for distribution of natural gas.

Natural Gas Distribution Grid Codes

Two public enterprises for energy services, "Strumica Gas" and "Kumanovo Gas", which respectively own and operate the local natural gas distribution network in the region of Strumica and Kumanovo, have prepared the natural distribution grid code for the area for which they operate. Both Grid Codes were approved by the ERC on 28 of April 2015 ("Official Gazette of the Republic of Macedonia", No. 73/2015 – for Strumica Gas - and No. 76/2015 – for Kumanovo Gas). As required under Article 94 of the Energy Law, each of these natural gas distribution Grid Codes specify:

- 1) the technical terms and conditions for connecting natural gas consumers to the relevant distribution grid, based on the principles of transparency and non-discrimination;
- 2) the methodology on setting the distribution grid connection charge, based on the principles of transparency and non-discrimination;
- 3) the terms and conditions and manner of third party access to the relevant distribution system, based on the principles of transparency and non-discrimination;
- 4) the technical and other terms and conditions on reliable and safe operation of the system in question;
- 5) the measures, activities and procedures in case of outages and emergencies;

- 6) the manner and procedure on distribution grid supervision and testing;
- 7) the manner and procedure on regulating natural gas flow and pressure through the relevant distribution grid;
- 8) the manner and procedure on harmonizing the operations in the relevant distribution system with the operations in the natural gas transmission system;
- 9) the operational requirements and accuracy class of metering devices, as well as natural gas metering method;
- 10) the distribution grid maintenance and development planning;
- 11) the contents of distribution system development plans, as well as the manner and procedure under which system users shall submit information required for the preparation of development plans;
- 12) the quality of natural gas delivery, pursuant to the natural gas Supply Rules;
- 13) the natural gas demand forecasting, based on data obtained from suppliers and consumers' development plans;
- 14) the manner and procedure on information provision for system users; and
- 15) the manner of cooperation with other natural gas system operators.

Rulebook on the manner and conditions for regulating tariffs for transmission, operation of transmission system and distribution of natural gas

On 31 of October 2011, the ERC issued the Rulebook on the manner and conditions for regulating tariffs for transmission, operation of transmission system and distribution of natural gas and published it in the "Official Gazette of the Republic of Macedonia", no. 151/11. This Rulebook sets forth the manner and conditions for the calculation, approval and control of the tariffs, by which the regulated maximum revenue needed to perform the following regulated natural gas activities are carried out:

- natural gas transmission,
- operation of the transmission system of natural gas; and
- natural gas distribution.

3.1.2. Cooperation measures

In Article 13 of the Energy Law, it is stated that - in compliance with the commitments assumed under the ratified international treaties - the Government of the Republic of Macedonia shall duly inform the neighbouring and other countries that are, or can be, affected by any measures taken to tackle any natural gas emergency situation, as well as any the competent international institutions and bodies established under the ratified international treaties.

3.1.3. Measures to cover peak demand

According the Article 7 of the Energy Law, the reliability of relevant energy type or energy fuel supply (including natural gas) shall be secured, in particular, by means of measures to address peak loads and contingency measures in the cases of failure to provide the delivery of the relevant energy type. Article 85 of the Energy Law further stipulates that the transmission system operator shall be obliged to award available transmission capacities and to address peak loads in the transmission network, pursuant to the Natural Gas Transmission Grid Code and the Natural Gas Market Rules.

3.1.4. The regulatory incentives for new investment

Article 86 of the Energy Law prescribes that the natural gas transmission system operator shall be responsible for the long-term transmission system development planning. It is further stated that the natural gas transmission system operator - in cooperation with the transmission network operators - shall be obliged to adopt an annual plan for the natural gas transmission system development it operates covering the period of the next ten years. To this end, by 31 October in the calendar year at the latest, the operator must submit the plan to the Energy Regulatory Commission and upon its approval by the ERC is required to publish the plan on its website. The plan should contain the necessary information related to the system expansion and upgrade, as well as the obligations of natural gas transmission network operators in the plan's implementation.

Allied to that, as part of the development plans, the transmission system operator must determine which network operator will be tasked to finance the necessary investments in the network development. The transmission network operator is also obliged to submit all data required for the planning process and should fulfil its obligations, as these are set forth in the development plan. Moreover, in the event that the natural gas transmission network operator - except in cases beyond its control - fails to initiate the realisation of the relevant network investment pursuant to the development plan within the next three years, it must request the Energy Regulatory Commission to task the natural gas transmission network operator with the following:

- 1) to initiate the realization of planned investments within a given deadline; or
- 2) to organize and implement an open call for the realization of planned investments by other investors, by applying the provisions from the law governing public procurement procedures; or
- 3) to accept funding of planned investments by increasing investment capital from other investors.

3.2. KEY MARKET PARTICIPANTS AND THEIR RESPONSIBILITIES

As it has already been stressed, the Energy Law, as subsequently amended, has set up the prerequisites for the full opening-up of the natural gas market in the Republic of Macedonia by regulating all issues related to the legal and financial aspects pertaining to the performance of natural gas transmission, transmission system operation, distribution and supply activities. In the next sections, we shall present a concise account of the key participants in the domestic natural gas sector and describe in brief their respective functions and tasks.

The natural gas **transmission network operator** performs natural gas transmission through the natural gas transmission network in its ownership or through the network for which it has been granted right to use, and shall cooperate with the natural gas transmission system operator for the purpose of maintaining, upgrading and expanding the transmission network. Under the Energy Law, the natural gas transmission network operator is obliged:

- to invest in the transmission network, pursuant to the transmission system development plan prepared by the natural gas transmission system operator and approved by the Energy Regulatory Commission;
- to maintain the network on the request of the natural gas transmission system operator, pursuant to the procedures set forth in the Transmission Grid Code;
- to construct connections and connect new transmission system users or other transmission network operators, based on the connection approval issued by the natural gas transmission system operator;
- to cooperate with other network operators and transmission system operator; and

- to secure confidentiality of commercial and business data of users connected to the transmission network.

The **natural gas transmission system operator** operates the natural gas transmission system and is required to connect it to the transmission systems of the neighbouring countries. Its key responsibilities, as these are laid down in the Energy Law, are the following:

- 1) to secure reliable, safe, cost-effective and quality natural gas transmission and delivery through the transmission system, in a non-discriminatory and transparent manner and under stipulated quality;
- 2) to secure reliable and safe transmission system operation, pursuant to the applicable regulations that stipulate the technical rules;
- 3) to plan the development of the transmission system under cost-effective terms and conditions, for the purpose of reliable and efficient operation of the transmission system, and by taking due care of environmental regulations and pursuant to the applicable regulations that stipulate the technical rules, as well as to secure long-term system ability to meet the reasonable natural gas transmission demand;
- 4) to plan the construction of any new interconnection capacities with transmission systems abroad, by taking due care of efficient use of existing interconnection capacities and balancing the investment costs and benefits for the consumers;
- 5) to adopt the transmission system development plan pursuant to the Transmission Grid Code and submit it to the Energy Regulatory Commission for approval, as well as to publish the plan on the website of the transmission system operator;
- 6) to maintain the natural gas transmission system, pursuant to the natural gas transmission system maintenance plan;
- 7) on the proposal from the transmission network operators, to adopt the natural gas transmission system maintenance plan pursuant to the Transmission Grid Code and submit it to the Energy Regulatory Commission for approval, as well as to publish the maintenance plan on the website of the transmission system operator;
- 8) to approve users' applications for connection to the transmission system;
- 9) to allow third party access for transmission system use, pursuant to the present law and the Transmission Grid Code, and based on the principles of objectivity, transparency and non-discrimination;
- 10) to award available transmission capacities and to address peak loads in the transmission network, pursuant to the Natural Gas Transmission Grid Code and Market Code;
- 11) to harmonize operations in the transmission system with the transmission systems it is directly connected to, as well as to cooperate and exchange data with operators of other transmission systems, pursuant to the commitments the Republic of Macedonia has assumed under the international treaties or the commitments of the operator stemming from its membership in international associations;
- 12) to publish data on available transmission capacities at interconnection lines with the neighboring transmission systems or transnational gas pipelines, for the purpose of securing non-discriminatory, objective and transparent access to and use of the transmission system;
- 13) to purchase natural gas to cover losses in the transmission system and the necessary ancillary services, under market terms and conditions and in a transparent and non-discriminatory manner, pursuant to the rules previously approved by the Energy Regulatory Commission;

- 14) to provide daily dispatch of planned import and export transactions and transit transactions through the transmission system it operates, based on the nominations submitted by natural gas market participants, and to update the schedule of regular time intervals, pursuant to the Transmission Grid Code;
- 15) to balance deviations between the actual and planned natural gas consumption in real time, pursuant to the Natural Gas Market Code;
- 16) to provide transparent and non-discriminatory application of balancing procedures to announced and realized natural gas transactions and service billing and collection;
- 17) to keep records and physical transaction schedules and to calculate deviations from announced transactions and charge the users for the imbalances occurred;
- 18) to establish the required changes to the natural gas dispatching schedule in cases of risks to the reliability of natural gas supply, outages and major deviations in natural gas consumption from the determined quantities;
- 19) to secure confidentiality of commercial and business data of system service users;
- 20) to provide information to transmission and distribution systems operators to which it is connected, for the purpose of securing reliable and efficient operation of the systems and interconnection lines;
- 21) to prepare reports on the financial and actual volume of planned and realized services and to submit them to the Energy Regulatory Commission, in a manner, under terms and conditions and within the deadlines stipulated in the license;
- 22) to keep dispatch logs, records on transmission systems reliability, data from the supervision and operation system, metered data and to keep such data, logs and records for at least ten years, and
- 23) to keep records on the transmission system operation and report thereof to the Energy Regulatory Commission, on request.

Another important class of market participants are the **natural gas distribution system operators**, each of which must operate and maintain the distribution system for the area in which it performs the activity of natural gas distribution and - when deemed cost-effective - upgrade and expand the relevant system. Each natural gas distribution system operator is also required to secure its system's connection to the natural gas transmission system and is further obliged:

- 1) to secure reliable, safe, cost-effective and secure operation of the distribution system, pursuant to the applicable regulations that stipulate the technical rules;
- 2) to secure reliable, safe and quality natural gas distribution through the distribution system, in a transparent and non-discriminatory manner;
- 3) to connect consumers to the distribution grid, as well as to allow third party access for distribution system use, pursuant to the present law and the Distribution Grid Code, and based on the principles of objectivity, transparency and non-discrimination;
- 4) to develop, reconstruct and maintain the distribution system, pursuant to the applicable regulations that stipulate the technical rules and to provide long-term system ability to address the reasonable natural gas distribution demand;
- 5) to develop grid maintenance plan pursuant to the Distribution Grid Code, and submit it to the Energy Regulatory Commission and publish it on the operator's website;
- 6) to purchase natural gas quantities required to perform its activities, under transparent, non-discriminatory and market-oriented procedures, pursuant to the rules previously approved by the Energy Regulatory Commission;

- 7) to meter natural gas quantities delivered to consumers and submit metered data to suppliers;
- 8) to allow users access to metering devices owned by the distribution system operator, pursuant to the present law and Distribution Grid Code;
- 9) to prepare reports on the financial and actual volume of planned and realized services and to submit them to the Energy Regulatory Commission, in a manner and under terms and conditions and within deadlines stipulated in the license;
- 10) to keep the dispatch log, records on communication systems reliability, data from the supervision and operation system, metered data and logs and records thereof, and to keep such data for at least ten years; and
- 11) to secure confidentiality of commercial and business data of distribution system users.

Furthermore, under the Energy Law, the natural gas distribution system operator is responsible for the long-term distribution system development planning in the service area where it performs the activity.

The **natural gas suppliers** form another important category of participants in the domestic natural gas market. A natural gas supplier can sell natural gas to consumers, traders, other suppliers, electricity and/or heating energy generators, natural gas transmission or distribution system operators, as well as to customers abroad. In order to meet the demand for the natural gas demand of its customers with whom it has signed supply contracts, a natural gas supplier can supply natural gas in the country and from abroad. Moreover, for the natural gas it has committed to deliver to its customers, a natural gas supplier is required to secure the relevant transmission and/or distribution capacity and regulated services pursuant to the applicable tariffs, Natural Gas Transmission Grid Code and Distribution Grid Code. Finally, each natural gas supplier should, based on metering performed by the relevant grid operator, invoice its customers for the quantities of the natural gas delivered, under the agreed prices and transmission and/or distribution system use charges.

Another crucial participant is the **natural gas supplier of last resort**, which must supply the consumers in the Republic of Macedonia who are connected to the natural gas transmission or distribution system and who have not signed contracts with any natural gas supplier or whose previous supplier has discontinued the implementation of its obligations that stem from any natural gas supply contracts. The natural gas supplier of last resort is obliged to prepare the natural gas purchase rules that must be approved by the Energy Regulatory Commission and which should stipulate in detail the terms and conditions as well as the manner and procedure for the purchase of natural gas from the supplier of last resort on the basis of the principles of transparency and non-discrimination.

The **natural gas traders** are another important class of participants in the national gas sector. Each such trader can purchase natural gas, for the purpose of selling it to other natural gas traders or suppliers, to electricity and/or heating energy generators, to the natural gas transmission and distribution system operators, as well as to natural gas customers abroad. Each trader - in the capacity of natural gas supplier - may sell natural gas to customers that fulfil the requirements for independent participation in the natural gas market, as stipulated under the Natural Gas Market Code. The mutual rights and obligations between the trader and its customers, as well as its obligations towards the transmission system operator and/or distribution system operators should be specified in a contract. Any natural gas trader is also obliged to submit to the natural gas transmission system operator information on the natural gas quantities and relevant time schedules related to all natural gas purchase/sale contracts which it has committed to deliver to its customers, as well as the transit contracts through the transmission system. Moreover, when performing natural gas export or transit, each natural gas trader is required to secure sufficient transmission capacity, pursuant to the applicable tariffs and the Transmission Grid Code.

Finally, the last significant group of natural gas market participants involves the **natural gas customers** all of which are now deemed eligible natural gas customers. Any natural gas consumers can sign supply contracts with natural gas suppliers pursuant to the terms and conditions stipulated in the Supply Rules. Furthermore, any customer, who meets the requirements for independent participation in the natural gas market, as stipulated under the Natural Gas Market Code (as well as the electricity and/or heating energy generators) are entitled to purchase natural gas from traders and from abroad. For the purpose of meeting its own demand, any natural gas customer must secure relevant transmission and/or distribution capacity or transfer this obligation to its supplier(s). A natural gas customer may also be supplied with natural gas from direct lines as well.

So far 15 licences have been issued for trade and five for supply. *Makpetrol* imports gas under a long-term contract with *Gazprom* and three big consumers import gas individually for their own needs. *Promgas*, a subsidiary of *Makpetrol*, acts as a supplier and, since 15 December 2014, also as a supplier of last resort.

3.3. THE EXISTING NATURAL GAS SYSTEM

3.3.1. Transmission and distribution

Macedonia has neither indigenous natural gas resources nor a gas storage facility and all gas is imported from Russia (via Bulgaria, Moldova, Romania, and Ukraine) through a single transmission line that crosses the Bulgarian border at Deve Bair.

The pipeline was constructed in 1997 and runs almost 160 km to Skopje, connecting Kriva Palanka, Kratova, Shtip and Kumanovo on the way. The installed capacity is 0.8 bcm/y at 54 bar with a possibility of an upgrade to 1.2 bcm/y at a higher pressure. The present throughput capacity is 145,000 m³/h.

The existing natural gas network is concentrated in the northern and eastern part of Macedonia and mainly serves the Skopje area.

The Natural Gas System in Macedonia



Gas transmission pipelines

Pipeline	Length (km)	Diameter (mm)
Bulgarian border to Skopje	98	500
Kumanovo Shtip branch	61	500
Kriva Palanka branch	1.5	100
Ginovci branch	1.7	100
Kratovo branch	4.6	100
Kumanovo branch	7.0	200
Skopje South branch	8.3	400
Skopje North branch	1.3	300
TIDZ – Bunardzik branches	5.6	200

The system has eight main branch points from the main line and 51 pressure reduction stations, 3 metering stations, 7 valve stations, and a pig launcher station.

In 2014, GAMA (the gas transmission joint stock company) continued the construction of a gas ring around Skopje connecting more major customers from the public sector and industrial plants. The gas ring will also serve the planned distribution system in Skopje, which is in the process of being tendered for construction. The gas ring is operated by GAMA and operates at a pressure of 12 bar. At present, some 6.5 km still needs to be constructed. The original plan was that GAMA would pay the connection charges for any new customers on the distribution system. This offer is no longer available, as GAMA does not have sufficient funding. New customers will have to pay for their own connection costs.

The transmission system operator, GAMA, is jointly controlled by *Makpetrol* and the state, operating 98km of the main transmission pipeline and 82 km of branch pipelines.

There are three distribution companies, Kumanovo that supplies 17 local public buildings and 20 households and DTIRZ (Directorate for Technological Industrial Development Zones, Skopje) serving the industrial consumers. There is also a small usage of natural gas in the Strumica region in the south of the country where compressed gas (CNG) is supplied by road from Bulgaria. The customers are 18 public buildings and 184 households that are the only residential consumers of natural gas in Macedonia. The municipality initiated the project and owns the distribution company and the license to operate.

3.3.2. Consumption

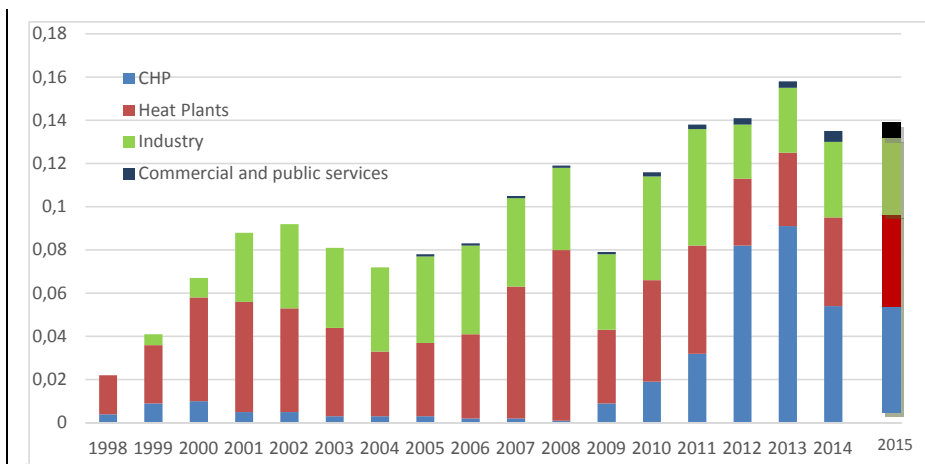
Final Energy Consumption in Macedonia 2000-2014 (ktoe)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Coal	104	95	69	138	90	109	136	182	146	68	113	338	128	195	198
Petroleum Products	670	587	686	689	707	726	715	776	751	741	837	866	859	874	856
Natural gas	7	26	32	30	32	33	34	34	31	29	41	43	23	27	33
Geothermal	15	21	12	12	11	9	9	9	8	9	10	11	9	8	7.4
Biomass	204	143	141	165	166	151	163	138	169	191	198	189	196	146	169
Electricity	448	432	428	490	496	536	554	580	593	550	583	644	602	584	578
Heat	153	132	136	128	122	127	118	107	103	99	54	57	52	44	40,4
Total	1601	1436	1504	1652	1624	1691	1729	1826	1801	1687	1856	2148	1830	1878	1783

Source: Energy Balance 2014 – State Statistical Office

The contribution of natural gas to the overall energy consumption has not increased significantly over the past decade. Gas accounts for less than 4% of the country's energy supply. According to the annual GAMA reports, in 2015 gross inland consumption was 0.136 bcm of which over 70% was consumed in heat and CHP plants. A further 25% was used by industrial consumers and only 4% of the supply went to the commercial and public sectors. Only a minimal amount is supplied to residential customers.

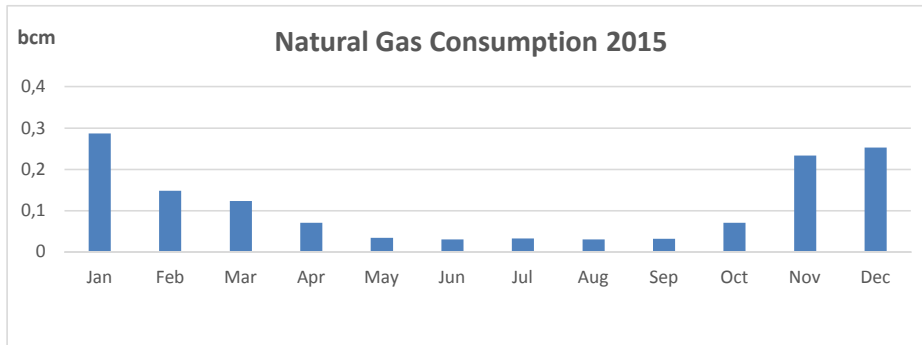
Natural gas annual consumption by sector 1998 to 2015 (bcm)



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A recent maximum monthly consumption of 0.037 bcm was recorded in December 2013 with a maximum daily flow rate of 0.0014 bcm. This is well within the 0.800 bcm/y or 0.0022 bcm/d capacity of the pipeline. In the winter peak day period, the utilisation of the capacity could approach 65%.

Natural Gas Gross Inland Consumption 2015



The heavy seasonal consumption is apparent with most of the gas used for heating and CHP plants in the winter. The small industrial load is maintained throughout the year. A winter disruption would obviously have the most economic and social impact.

3.3.3. Market operations

The gas market operations are, for all practical purposes, controlled by GAMA (a joint venture between the company Makpetrol and the State) supervised by the Energy Regulatory Commission and finally by the Government of Macedonia.

The precise division of the ownership of GAMA is still the subject of a long-standing legal dispute. At present, operations are based on an agreement that sets ownership at 50/50 between the two parties.

Due to its involvement in both transmission and supply, Makpetrol is an important player in the market.

According to the Implementation Report prepared by the Energy Community Secretariat, the present organisation of GAMA is in line with Second EU Energy Package on Gas, but it is not fully compliant with the most recent Gas Directive (Directive 2009/73/EC). At present, the TSO is GAMA, which is a separate legal entity. However, one of the GAMA shareholders, Makpetrol, operates as the sole importer of Russian gas and owns a daughter company Prom Gas, which supplies customers and is subject to public service obligations. This means that a vertically integrated company is involved in both supply and transmission system operations, which contravenes the unbundling requirements of Third EU Energy Package on Gas.

There have been 15 licenses issued for natural gas trading by the ERC and 5 for supply. A licence for the supplier of last resort was issued to Prom Gas by ERC on 15.12.2014.

As already mentioned, there are three licensees for distribution system operations: DTIRZ, Kumanovogas (both supplied by Prom Gas) and Strumica Gas (using CNG traded from Bulgaria via road).

All gas customers are granted eligibility status according to the Energy Law but, in practical terms, only four eligible consumers are supplied at unregulated prices in Skopje: Toplifikacija(BEG), TE-TO, Kogel Sever, and Maksteel. At present there are no household

consumers connected directly to a gas main except for those in Strumica on the compressed system.

Presently TE-TO and Toplifikacija(BEG) have made supply contracts directly with foreign natural gas trading companies.

At the beginning of 2012, a new state-owned company, Macedonian Energy Resources (MER), applied for a TSO licence based on the 2011 Energy Law. This licence is based on the planned expansion of the Macedonian natural gas transmission system and has not yet been issued.

Prom Gas issues annual contracts to the customers, with Makpetrol operating a medium term contract with Gazprom. It is understood that the Macedonian companies pay Gazprom directly at the Bulgarian border without the intervening transit fees.

3.3.4. Planned expansion of the natural gas system

There are plans to expand the gas distribution system throughout Macedonia. According to a feasibility study conducted in 2010, the total annual natural gas demand in 2030 could be 1.84 bcm compared to the present annual consumption of 0.16 bcm.

Planned distribution pipelines

The 2010 feasibility study allows for the construction of several pipeline projects to complete the national distribution system.



Lot 1. Kleocvoce-Stip-Negotino 96.7km

Lot 2. Negotino-Prilep-Bitola 91.7km

Lot 3. Stip-Radovis-Hamzali (Bulgarian border) 60km

Lot 4. Hamzali-Stojakovo (Greek border) 50.4km

Lot 5. Skopje-Tetovo-Gostivar (possible connection to Kicevo) 110km.

So far, only part of Lot 1, Lot2 and Lot 5 has been approved by the Government. The section from Klecovce to Stip was sanctioned in 2014. This 61km section was completed in June 2016.

The Republic of Macedonia also borrowed from Deutsche Bank and Erste Bank loan for financing the project "Gasification of the Republic of Macedonia - Phase 1 - section Stip - Negotino - Bitola (length 127km) and section Skopje - Tetovo - Gostivar "(length 75 km), as the first phase of construction of the national gas transmission system of the Republic of Macedonia. The construction is planned to take place in the period 2016 - 2018. The tenders for construction of the national gas transmission system Phase 1 are finished, agreements were signed and in August 2016 started the construction of the above mentioned lots.

The second phase of construction of the national gas transmission system of the Republic of Macedonia, sections Stip-Radovis- Hamzali -Strumica- border with Republic of Greece, sections Hamzali-Novo Selo- border with Republic of Bulgaria (134km in length) and Gostivar-TPP Oslomej-Kicevo (length of 39 km) and the rest of the main gas pipelines of the National Gas Pipeline System in the Republic of Macedonia is envisaged to develop in the period 2018 - 2022.

The funds for the construction of the remaining sections of the gas pipeline system of the Republic of Macedonia are expected to be provided by international financial institutions, European Investment Bank, European Bank for Reconstruction and Development and others.

Plans for further connections to the international gas transmission pipeline network are yet to be finalized. The feasibility study proposes six possible interconnection points: two to Greece, one to Bulgaria, and single connections to Serbia, to Kosovo and Albania.

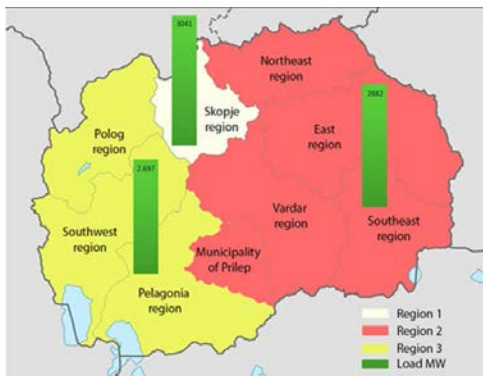


3.3.5. Distribution system

During 2014, a feasibility study was carried out on the possibility of establishing a public-private partnership (PPP) for developing a local distribution system for Skopje and further systems for the East and West regions of Macedonia.

The separation by region is made in proportion to the available consumption (orientation) and the same regions are almost identical.

Konzum: **Region 1 (Skopje) – 3041 MW**
 Region 2 (East) – 2882 MW
 Region 3 (West) – 2697 MW



A unsuccessful public announcement has been made for the establishment of a PPP for the Skopje distribution system in the past period. A crucial element in the tendering was the cost of connecting end-users to the grid. The government have estimated that the potential heat market, which could be connected to the Skopje system, would be 1720 GWh/y, equivalent to 0.190bcm of natural gas. If this were to be achieved, it would account for over 50% of the Skopje heating demand. At present, GAMA has enough pipeline capacity to cover this increased gas flow. The required investment cost is estimated at EUR 98 million.

In the next period, the government also announced additionally the plans for two further PPP tenders to cover the distribution system for the East and West regions of Macedonia. The investment costs involved would be EUR 27.5 million for the East for the construction of a 220km network over four years. The Western region would require an investment of EUR 22.2 million for a 180km system over four years. When these plans are completed, the forecast natural gas demand has been estimated by the feasibility study and is outlined in the table below.

Forecast of the total consumption of natural gas (bcm)

Year	2020	2025	2030
Residential	0.095	0.170	0.310
Commercial/public services	0.043	0.070	0.095
Industry	0.140	0.210	0.335
Total end users	0.280	0.450	0.740

Power generation	0.930	1.100	1.100
Grand Total	1.210	1.550	1.840

Source: Executive Summary of Feasibility study for the gas pipeline system in the country (2010)

This substantial increase in gas demand, all of which would be supplied from one connection and one supplier, would obviously have serious implications for the security of supply. The effects of a disruption would be much more damaging and costly.

3.4. SECURITY OF SUPPLY

3.4.1. Background

In January 2009, the South Eastern European region including Albania, Bosnia Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Montenegro, Romania, Serbia and Kosovo suffered from a disruption of the flow of Russian gas supplied through the Ukraine. The disruption in supply coincided with a period of particularly cold weather and severely affected a region already suffering the adverse effects of the economic crisis. The region is supplied from Russia through three different transit routes. Romania, Bulgaria, Greece, and Macedonia take gas directly from the Ukraine. Serbia and Bosnia Herzegovina are also supplied from the Ukraine, but the connection is through Hungary. Croatia takes the gas through Austria and Slovenia. As the three systems are not connected, there could be no cooperation in the event of a major disruption.

Of all the States in the region, Bulgaria and Macedonia are particularly vulnerable to interruption from the Ukraine as these countries are 100% reliant on Russian gas. Bulgaria has a very small gas storage capability of just a few days, whilst Macedonia has no gas storage facilities. Most of the other Balkan States now have gas storage and interconnection facilities to enable them to cope with any gas supply interruption of up to two months.

Bearing in mind the present political difficulties between Russia and the Ukraine, another disruption in natural gas supplies is possible. Only the development of alternative cross-border connections and gas storage facilities will improve the security of gas supply.

The cancellation of the South Stream project whereby a Russian pipeline route would cross the Black Sea and make landfall in Bulgaria has put on hold the Macedonian plans to connect to this system. Officially, the project is closed, but it may not be necessarily completely dead. The original plan to connect a Black Sea pipeline may still be viable. The planned South Stream components can be used to build an alternative route via a landfall in Turkey to transport large amounts of gas to Southern Europe. A great deal of design and feasibility work has already been done on these routes. It is interesting that a flow of 63 bcm has been mentioned for an alternative route – the same volume as would have been provided by South Steam. Of this, 13bcm would go to Turkey and a further 50 bcm to a Greek border hub for further distribution.

If a new gas hub were to be created in Turkey, then Bulgaria and Romania could be supplied merely by reversing the flow in existing pipelines.

Other promising routes are the Trans-Adriatic Pipeline (TAP), which would bring Azerbaijani gas to Italy via the Balkans, and LNG imports via a proposed terminal on the Croatian island of Krk (which now looks increasingly likely) and an existing LNG facility in Revithoussa in Greece.

These sources of supply can in no way be seen as alternatives to South Stream as their combined flow rates will be much less. The TAP will initially provide 10 bcm and the Krk terminal up to 6bcm and it is likely that Russian gas will maintain a price advantage.

3.4.2. The 2009 natural gas supply crisis in Macedonia

Aware that a probable gas supply interruption was imminent following a warning from Gazprom, the prime minister held a meeting in early January with GAMA to discuss the risks involved in the disconnection of gas supplies and to plan the management of the crisis. All gas customers had been instructed to ensure that they had access to adequate alternative fuels and the ability to switch fuels at short notice. A clause in the gas delivery contracts stated that deliveries might be interrupted. After the crisis meeting, GAMA informed the customers to be prepared for interruption.

The supply disruption began on 6 January 2009 and the effects lasted until 21 January (15 days). For 2 to 3 days, the situation was critical with a total cut in supply. In all, 15 industrial consumers were disconnected. Supplies from the line pack pressurised system was reserved for those priority heat plants and public buildings such as schools and hospitals with no dual-fuel capability. The line pack with a capability of a million cubic metres was used for 2 to 3 days and at the same time Bulgaria made limited quantities available to maintain pressure. Throughout the crisis, GAMA was in direct contact with the Gazprom engineers. The design pressure of the transmission pipeline is 54 bar but normally operates at 40 bar. On disruption, the pressure fell to 33 bar and reached a low of 17 bar before the situation began to improve. The supply was reduced by 0.0107 bcm. Although all the industrial consumers should have been able to switch to alternative fuels, two of the major plants could not change over in time. These two steel companies had to stop production for 2 to 3 days. Although natural gas was being used as compressed fuel for transport, it was possible to switch to alternative fuels and there was minimal effect on transportation.

It was estimated by the Macedonian Energy Department that the financial costs attributable to the crisis amounted to EUR 5.7 million.

The pattern of natural gas consumption has changed since 2009 when the major customers were mainly industrial and heat plants. From 2012, the usage of natural gas for CHP has expanded and this is now the largest consumer category, accounting for 57% of the total consumption, which is a much larger load than in 2009.

The CHP gas demand is highly variable due to influence of electricity prices. At present, the CHP plants will sign contracts for only limited supplies of gas. A typical contract for November 2014 stipulates a take of only 10 days in the month. At the present electricity tariff prices, it is not economic for the CHP plants to run on generation only. They need the revenue from heating to make an economic case for running the plant with gas prices at current levels.

3.4.3. Supply crisis management

Since 2009, the Government has taken steps to manage a gas supply interruption. The Ordinance on Natural Gas Supply Crisis published in 2013 allows a committee to be formed in the event of a supply interruption. This committee is established under the leadership of the Minister of Economy and is comprised of two officials from the Ministry of Economy and representatives from the system operator for natural gas, the distribution companies, gas traders, suppliers, and the Energy Regulatory Commission. In the event of an interruption, the committee assembles, evaluates the crisis together with the Centre for Crisis Management, and informs the government.

The measures to be taken are ranked into 11 levels according to the severity of the supply situation. The measures start with a reduction of all deliveries from the transmission system excepting the CHP plants and district heating systems, which are regarded as the priority. The next step is to disconnect all consumers that have a dual fuel capability and are able to switch to an alternative fuel.

Finally, a gradual reduction of supplies can be made whilst maintaining deliveries to the CHP plants, district heating and protected consumers as long as possible.

Macedonia now participates in the Security of Supply Coordination Group and the Gas Subgroup under the Energy Community. The Secretariat of the Energy Community participates in the EU Gas Coordination Group.

3.4.4. Impact of future disruptions

During the summer of 2014, a stress test was carried out under four possible scenarios.

- Disruption of the Ukrainian route to the EU during a period of 1 month (1.2.2015-28.2.2015)
- Disruption of the Ukrainian route to the EU during a six month period (1.9.2014-28.2.2015)
- Disruption of all Russian supplies to the EU during a period of 1 month (1.2.2015-28.2.2015)
- Disruption of all Russian supplies to the EU during a six month period (1.9.2014-28.2.2015)

In parallel with the stress test, the Energy Department conducted a survey on the expected loss of supply to each consumer and their status as far as ability to switch to an alternative fuel. The results of the survey are set out in the table below.

Natural gas disruption and alternative fuel availability – all figures in bcm:

Category	Loss of NG Feb 2015	Loss of NG Sep to Feb 2014/15	Alternative fuel options Feb 2015	Alternative fuel options Sep to Feb 2014/15	Plants with no alternative fuel
CHP	0.0337	0.2089	0.002	0.010	2 of 3
Heat plants	0.0111	0.0511	0.0111	0.0511	0 of 4
Industry	0.00374	0.0190	0.0028	0.0135	9 of 25
Commercial and public	0.00118	0.00371	0.00106	0.00344	5 of 12
Total	0.0498	0.2827	0.01699	0.0781	16 of 44

The main effect of disruption will be felt by the two CHP plants that have no dual-fuel capability. The heat plants can switch to heavy fuel oil and they can cover the heat supplied from the CHP plants so that the effect on residential heating should be minimal. The electricity produced from the CHP plants can be replaced by the existing generation or imports. There are nine industrial loads, which cannot switch fuels, and these include the

two steel plants. In the commercial and public building sectors, five of the consumers are not able to switch fuels. Any transport using compressed natural gas can readily switch to other fuels.

A survey was conducted of the interrupted consumers asking for them to estimate the costs involved in switching fuels. Of those plants that responded, the total estimates were equivalent to EUR 1.7 million for one month in winter and EUR 8.8 million for the six winter months. The Energy Department estimated that if all customers had responded, the six monthly cost would have been some EUR 76 million but this is a very rough estimate, as the methodology for calculating the financial losses is not specified.

As the supply comes effectively from one supplier along one pipeline, the location of the interruption is irrelevant. The only crisis measure that can be adopted is a gradual reduction in gas pressure and the interruption of all consumers that have a dual fuel capability. Operating the essential consumers on reduced gas pressure would maintain adequate supplies for a maximum period of one week but possibly for only 2 to 3 days.

At present, there are no residential consumers directly connected to the gas distribution system but the district heating customers would be threatened if supplies to the CHP and heating plants were cut off. As these plants take 80% of the current supply, the situation would soon be critical. The CHP plants account for nearly 60% of the consumption and have no dual fuel capability. The heating plant boilers are dual-fuel and can switch to heavy fuel oil and these could meet the peak load lost from the CHP plants.

If the extension of the gas transmission and distribution systems goes according to the existing plan, then the residential consumption will expand rapidly leading to an increased vulnerability in the event of the gas interruption.

3.4.5. Options to strengthen the security of supply

In order to reduce the possibility of interruption, it would be ideal if alternative sources of gas supply could be made available. In July 2013, the government signed an agreement with the Russian Federation for cooperation on the construction of a gas pipeline to connect Macedonia to the South Stream system. The decision of the Russian government, taken in early 2015, to cancel the South Stream project will remove this option as an alternative supply route for Macedonia. If the alternative plan to transport Russian gas via the Black Sea to Turkey is implemented, then there would be large amounts of gas available at the proposed Greek hub or through connections through Bulgaria and Romania.

TESLA Project where MER JSC Skopje was assigned to be a signatory of the Memorandum of understanding of this gas pipeline project.

The main characteristics of TESLA Project are:

- TR-GR-RM-SRB-HU-AT gas corridor concept with the aim to create a link between TR and CE
- 42 BCM/y at TR-GR border, 36/20 BCM/y at RS-HU border
- Multi-source (S ⇌ N: RU, RO, AZ, GR LNG)
- Bidirectional (N ⇌ S: CEGH)
- Third party access
- No single TSO
- PCI Project!

TESLA PROJECT



Initiative **CESEC (Central and South East Gas Connectivity)** that aims to promote the diversification of natural gas supply and security of supply in the region by enhancing the regional infrastructure and improving the integration of markets through joint engagement of all EU Member States and of the Parties to the Energy Community.

Memorandum of Understanding was signed on July 2015 in Dubrovnik and the projects for interconnectors of the Republic of Macedonia with the Republic of Bulgaria/Greece have been included in the Action plan.

Additionally in June 2016 the process of assessment of project proposals under Regulation 347, by the Energy Community Secretariat was finished, where projects for gas interconnection to Republic of Serbia and Greece were approved in the preliminary list. The PECI/PMI projects will be submitted for the opinion to the ECRB and ACER and further sent for adoption to PHLG and MC.

CESEC (Central and South East Gas Connectivity)



Another option that could be considered is a connection to the Trans Adriatic Pipeline (TAP) through either Albania or Greece. This connection would have the advantage of providing an alternative supplier – that of Azeri gas from the Shah Deniz field in the Caspian that is expected to come on stream in 2018. The pipeline could also transport gas from Iraq, Turkmenistan and Israel in future so would form a secure supply route.

Proposed routes for the Trans Adriatic Pipeline



There is also a proposal to connect the TAP between Albania northwards along the Croatian coast, the Ionian Adriatic Pipeline (IAP). This connection, along with a proposal to build an LNG terminal on the island of Krk of the Croatian coast, would substantially increase the security of supply in the region. This coastal pipeline would form part of the Energy Community gas ring concept whereby the gas markets of Albania, Bosnia-Herzegovina, Croatia, Kosovo, Macedonia, Montenegro and Serbia could be linked. The ring would have the advantage of having the capability of being supplied from multiple directions and would facilitate the development, regional gas market. Another advantage would be that this system could be developed incrementally by adding new entry points and pipeline sections. A system of gas-fired power stations could help underpin the world in countries with relatively small gas demands such as Macedonia, Albania, Montenegro and Croatia.

Access to storage facilities would also strengthen the security of supply but this is prohibitively expensive for Macedonia to consider building and there is limited storage in Bulgaria. Access to Greece via a two-way pipeline is a possibility. At present Macedonia has no agreement to use the Sidirokastro to Kulata pipeline from Greece to Bulgaria that was used in the 2009 crisis to provide LNG from the Revithoussa terminal in Greece to Bulgaria. There is over 8.5 bcm of unused entry capacity available from the Greek system, most of it from the underused LNG terminal. An agreement to supply Macedonia via this system would greatly improve the country's security of supply.

At present Macedonia will remain in a highly vulnerable position as far as security of natural gas supply is concerned.

4. OVERALL CONCLUSIONS

The domestic energy production that Macedonia is forecasted to produce is clearly insufficient to satisfy the increasing consumption of energy, principally in the forms of imported fossil fuels and electricity. As a consequence, Macedonia will remain an importer of oil, gas and electricity and thus reliant on imports to satisfy the final energy demand. At present, the level of security of supply is not ideal with further diversification in supply needed; however, Macedonia has made significant steps toward addressing these challenges.

As far as natural gas is concerned, at present Macedonia will remain in a highly vulnerable position as far as security of natural gas supply is concerned.

The proposed expansion of the National and gas distribution network, whilst remaining dependent on a single supplier via a single pipeline will only serve to compromise the security of supply further.

Macedonia has made significant efforts to transpose existing EU laws regarding security of supply into its own legislation so as to adhere to the EU acquis.

The country has made considerable efforts to make strategic partnerships but has been slowed down by geopolitical and economic issues outside its control.

Overall Macedonia looks well placed to meet the expected requirements that have been presented by the adoption of the EU energy acquis.