



Handbook for Trading Electrical Energy

Official Textbook for Executive Programme in Trading Electrical Energy

This programme is designed to deliver comprehensive knowledge on the trading of electrical energy and offers up-to-date information on the current state of electricity markets in Europe.

Supporting Institutions: *



Republic of Serbia
MINISTRY OF ENERGY, DEVELOPMENT AND ENVIRONMENTAL PROTECTION



ENERGY AGENCY
of the REPUBLIC of SERBIA



SERBIAN TRANSMISSION SYSTEM AND MARKET OPERATOR

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ABOUT THE PROGRAMME

This programme is designed to deliver comprehensive knowledge about the trading of electrical energy, and offers up-to-date information on the current state of electricity markets in Europe.

The opening up of retail electricity markets in Serbia in 2013 means that many new market players from the industrial sector are purchasing electrical energy. This programme therefore also covers, in Part II, the legal and tax framework of electricity trading in Serbia and their implications on the wholesale and retail markets.

Part I of the programme focuses on electricity markets, the fundamental supply and demand model, as well as addressing organisational issues in regard to electrical energy trading activity and some advanced topics like structured trading products of electrical energy.

Part II of the programme covers the legal and tax framework of electricity trading and its implications for the Serbian retail market.

The programme teaches about the whole value chain when trading electrical energy, identifying all the preconditions to be met before a trade can be executed, as well as providing know-how on executing the trade and the process following the executed trade. Attendees will gain a thorough knowledge of the business – not only regarding negotiating a trade, but also the requirements in terms of capital, technical and human resources, and the legal framework within which to organise and smoothly execute the trading of electrical energy.

After successfully completing the Executive Programme in Trading Electrical Energy, attendees will be ready to take on an executive position trading electrical energy.

Executives (traders) who conduct trading activity on behalf of a company must be very well informed and aware of the consequences of their actions, because the whole company may benefit or suffer. This is one reason why participants should pay close attention during the programme and ensure that all their questions are answered. Participants are encouraged to forward any questions that arise after the programme, via email or phone.

Stratega East doo collaborates with VUK Tax Attorneys to help provide the content.

In addition, the programme includes visiting speakers from the relevant authorities for electricity trading, as well from the sponsors.

Use of materials

This booklet contains all the teaching material for the programme, provided by Stratega East for the purpose of the lectures. This booklet is licensed and for the use of the attendee only. All rights are reserved by Stratega East doo. Attendees may use parts of this material for their own work, research and presentation. However, the material as a whole or in its parts shall not be copied, reproduced and distributed to any third parties without the written permission of Stratega East doo.

LECTURERS



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ENERGY INVESTMENTS CONSULTING

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Senior Energy Trader

Aleksandar has over 10 years of experience in trading contracts for electrical energy in the West, Central East, Southeast Europe and Turkey, within some of the biggest European energy utilities and energy trading companies, including:

- RWE Supply & Trading Switzerland S.A.
- Essent Trading International S.A.
- E.ON Sales & Trading GmbH
- E.ON Energy Trading AG
- Holding Slovenske elektrarne doo.

A specialist in energy holds an:

- MSc in Technology from Helsinki University of Technology
- MSc in Electrical Engineering from the University of Belgrade, Faculty of Electrical Engineering.



VUK | PORESKI ADVOKATI
TAX ATTORNEYS

Veljko Vuković,
Tax Attorney

An attorney-at-law with years of experience of working with taxes, firstly as a tax manager with PricewaterhouseCoopers, the global leader for auditing and tax consulting, and then as an attorney-at-law with Karanović & Nikolić, the largest regional law firm. In 2011 Mr Vuković set up the independent law firm VUK TAX ATTORNEYS, the first law firm in the Republic of Serbia established with the purpose of providing legal aid predominantly in the area of taxes.

Mr Vuković has assisted with tax advice, due diligence and legal representation in tax and legal matters for a number of multinational clients, including Philip Morris, E.ON, EGL, Atel, Wrigley, Avon and Plaza. He has particular knowledge of the energy sector, where he continues to assist clients to run their trading operations in Serbia seamlessly. He also monitors developments in legislation and practise within the sector.

PART I: THE WHOLESALE ELECTRICITY MARKET

Introduction to Electric Power Systems

According to the law of conservation of energy, ‘the total amount of energy in an isolated system remains constant over time, meaning energy cannot be created nor destroyed, but it can be transferred or transformed from one form to another’.

An electrical power system is a system in which primary energy (hydro, wind, fossil (coal, oil, natural gas), solar, nuclear, geothermal, etc) is transformed into electrical energy, transmitted over a long distance, distributed and converted back into:

- thermal energy (heat);
- mechanical energy (work of the machines);
- solar energy (lighting of bulbs, TV screens, etc.; and
- stored energy (batteries, pump storage reservoirs (hydro), chemical processes (energy content materials and liquids, etc.)).

If we consider an electrical power system as a black box that processes the input and provides an output during a given period of time, then the energy value of the input (all the primary energy to be fed into the electrical power system during a given period of time) is equal to the energy value of the output (the sum of all forms of energy that leave the electrical power system over time). Therefore an electrical power system does not create energy (or destroy energy) but converts forms of energy.

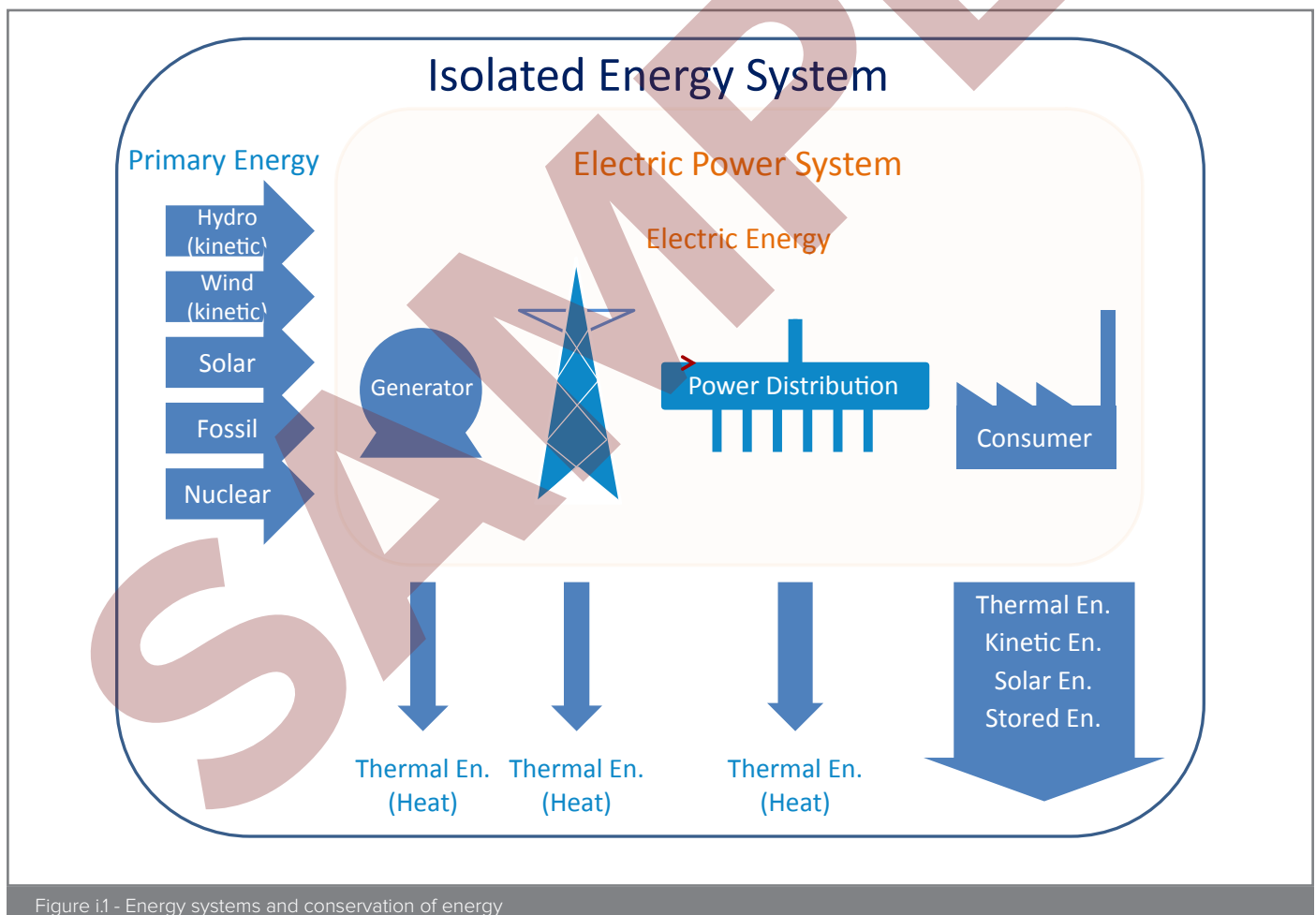


Figure i1 - Energy systems and conservation of energy

The world’s biggest electrical power systems consist of: generators of electrical energy (energy transducers that convert primary energy into electrical energy), transformers of voltage levels, high-voltage transmission lines, electricity distribution grids and consumers (energy transducers).

Through the electrical power system, electrical energy is transferred long distances from the place of formation (generator electrical connection to the grid) to the place of utilisation (factories, homes, etc.).

When electrical energy flows through the conductors, it partially converts into thermal energy in the form of heat dissipated into the air. This dissipation of electrical energy is smaller if the electrical current is smaller. To achieve a smaller current, the voltage level of the transmission line should go higher. Therefore, the voltage level of the transmission lines is highest in 110-750kV power systems. However, for the safe usage of electrical energy, the voltage level has to be reduced to the lowest levels of 220V.

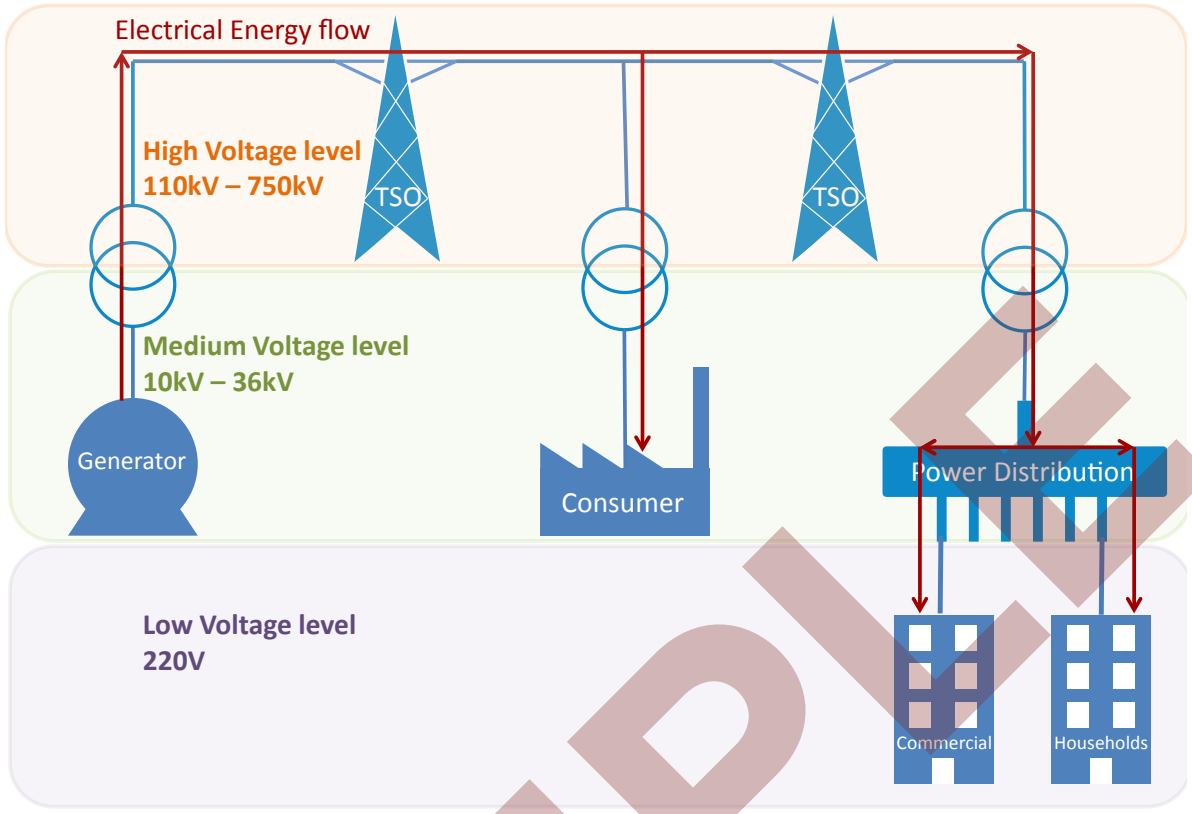


Figure I.2 - Electrical power system (elements, voltage levels and direction of energy flow)

It is important to recognise that different businesses in the power industry work at different voltage levels, which is important when considering the legal aspects and definitions of the deregulation of the power industry.

Delivery of electrical energy throughout the electrical power system has a time component. If we could freeze a moment in time, we could see the picture of the power flows. Naturally, power flows are from the source (generator) to the sink (consumer).

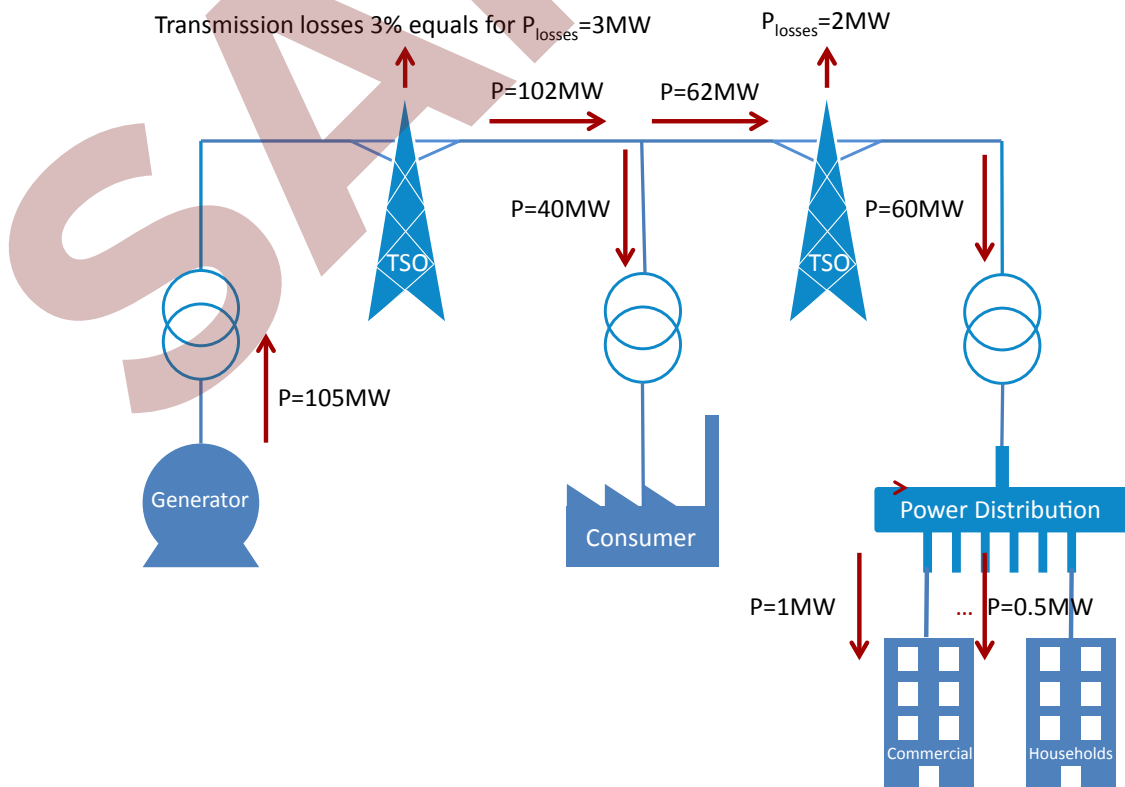


Figure I.3 - Active power flows in the electrical power system

Standard Profiles

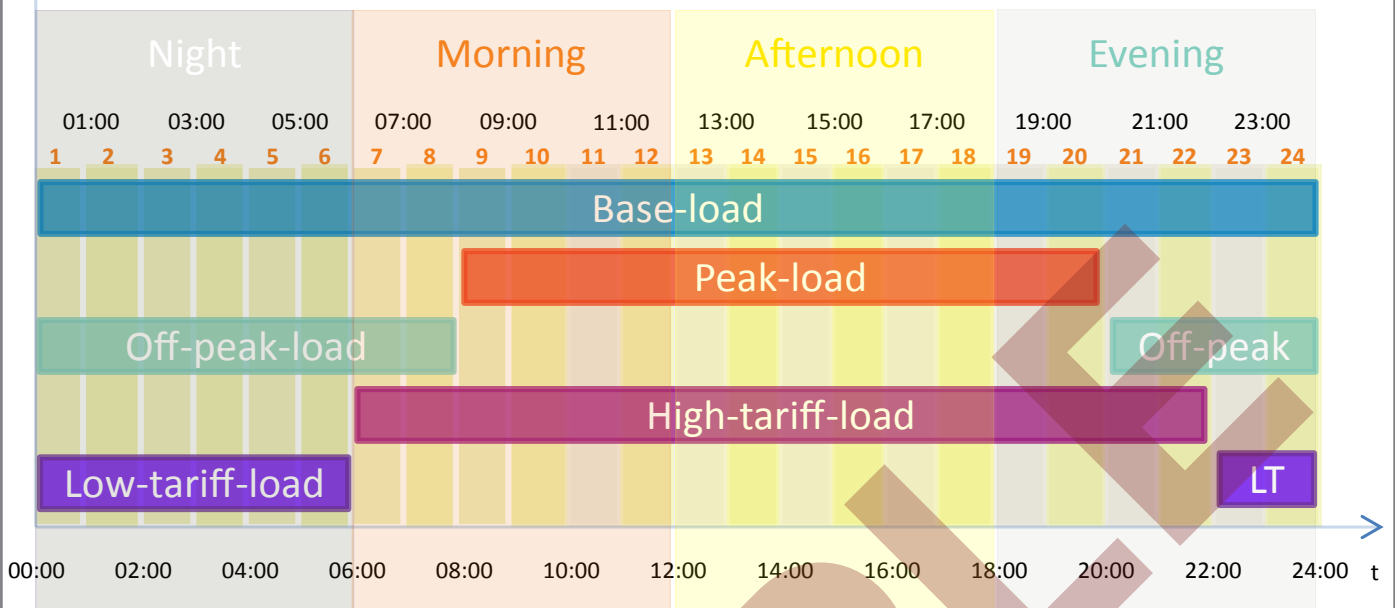


Figure 1.6 - Standard profiles of electrical energy

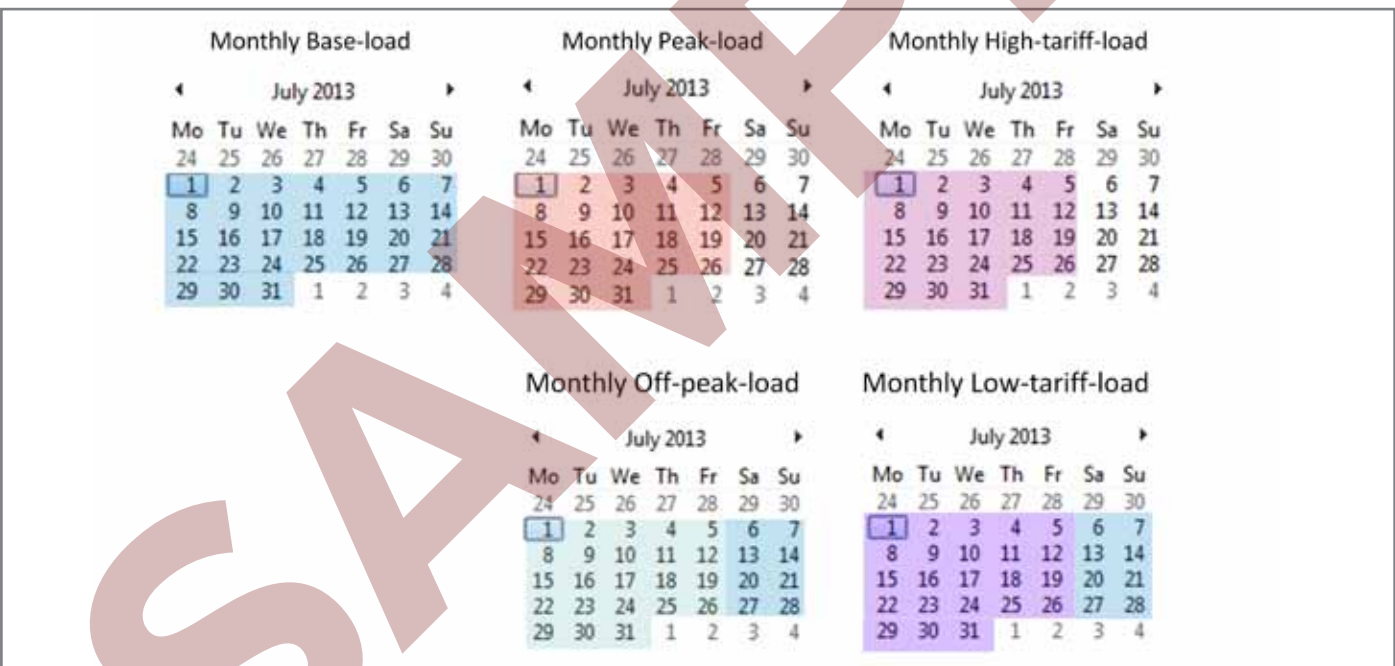


Figure 1.7 - Standard profiles in Delivery month

Base-load Power MO-SU 00.00 – 24.00 (hour 1 to hour 24)

The simplest and most standard profile of electrical energy is base-load profile. It is a flat profile in terms of its shape, meaning it is an equal size (in terms of the value of power) in each hour for a single day (00.00 – 24.00h, without interruption). There is no difference if a day is a working day, or bank holiday, or public holiday, or weekend. The daily contract for base-load power consists of 24 equal hourly products.

Base-load product is commonly bought to cover the bulk amount of required electrical energy. From a trading perspective, it is the most liquid of all products.

Peak-load Power MO-FR 08.00 – 20.00 (hour 9 to hour 20)

A single-day peak-load power profile is defined as an equal size (value of power) in all consecutive hours, starting at 08.00h and stopping at 20.00h. A daily contract for peak-load power consists of 12 equal hourly products.

Peak-load power is commonly used to cover peak consumption during working days, because this is when there is the highest demand

Intraday Electricity Market

The intraday electricity market is a very lively and interesting market. It gives market players a chance to change scheduling programmes within a day of delivery, less than 24h in advance (normally, a few hours in advance). This market represents the last chance for the market players to have an input and decide the prices of their physical portfolio.

Most of the active players in this market are from power generation or power distribution, with some industrial clients, but also traders.

Balancing Electricity Market

The balancing electricity market is the final market price established by the TSO (transmission system operator). Electricity companies and traders can submit offers to sell and bids to buy energy from the system by altering their generation or consumption. The price is unpredictable, therefore the balancing electricity market is only used as part of a speculative trading strategy or if consumption or generation is not as expected (for example, because of a power plant outage or similar transmission system fault).

All players are subject to obligatory balancing market participation and accept that when they have imbalances in their portfolio, these imbalances are settled with the balancing price.

Contractual Trading Inputs for a Trade of Electrical Energy

When the two parties (buyer and seller) involved in an electrical energy transaction are negotiating a trade, they have to agree several trading inputs. It is very important that each input is entered correctly; a mistake in the books can have huge consequences in terms of commercial loss.

Figure 1.13 - Trade booking

	A	B	C	D	E	F
1	TPS	Date	01/10/2009	01/10/2009	01/10/2009	01/10/2009
2	10XGR-HTSO-----B	from Control Area to Control Area out-party in-party	10YCA-BULGARIA-R 10YGR-HTSO-----Y Company ABC Company WER	10YGR-HTSO-----Y 10YGR-HTSO-----Y Company WER Company LLM Company WER	10YGR-HTSO-----Y 10YGR-HTSO-----Y Company LLM Company WER	10YGR-HTSO-----Y 10YMK-MEPSO-----8 Company WER Company KLM
3		Sender	Company WER	Company WER	Company WER	Company WER
4		Schedule Version	1	1	1	1
5	TargetFolder					
6	C:\TPS					
7						
8						
16						
17	from Time(CET)	to Time(CET)	MV	MV	MV	MV
18	00:00	01:00	25	0	5	30
19	01:00	02:00	25	0	5	30
20	02:00	03:00	25	0	5	30
21	03:00	04:00	25	0	5	30
22	04:00	05:00	25	0	5	30
23	05:00	06:00	25	0	5	30
24	06:00	07:00	25	0	5	30
25	07:00	08:00	25	0	5	30
26	08:00	09:00	25	15	0	10
27	09:00	10:00	25	15	0	10
28	10:00	11:00	25	15	0	10
29	11:00	12:00	25	15	0	10
30	12:00	13:00	25	15	0	10
31	13:00	14:00	25	15	0	10
32	14:00	15:00	25	15	0	10
33	15:00	16:00	25	15	0	10
34	16:00	17:00	25	15	0	10
35	17:00	18:00	25	15	0	10
36	18:00	19:00	25	15	0	10
37	19:00	20:00	25	15	0	10
38	20:00	21:00	25	0	5	30
39	21:00	22:00	25	0	5	30
40	22:00	23:00	25	0	5	30
41	23:00	00:00	25	0	5	30
42	checksum		600	180	60	480
43						

Figure 5.9 - Sample of a scheduling file

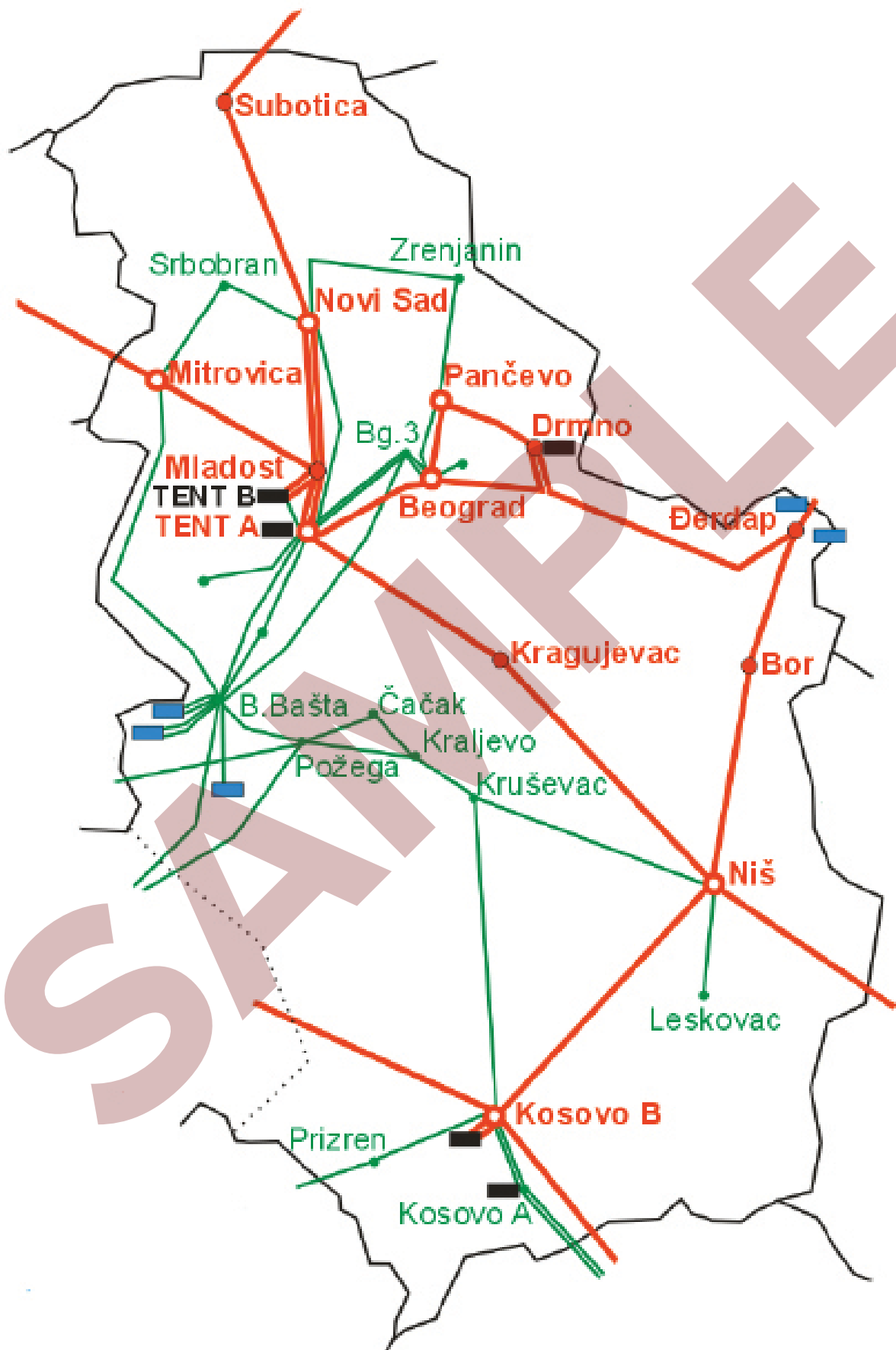


Figure 6.3.G - Serbia grid

PART II: THE LEGAL AND TAX FRAMEWORK OF ELECTRICITY TRADING AND ITS IMPLICATIONS FOR THE SERBIAN RETAIL MARKET

- European Federation of Energy Traders (EFET)
- Serbian energy law, grid code and market code
- Supplying final consumers with electricity
- Balance responsibility
- Unbundling of EPS
- Customs clearance of electricity
- Taxation of electricity trading transactions

01 EUROPEAN FEDERATION OF ENERGY TRADERS (EFET)

European Federation of Energy Traders (“**EFET**”) is an organisation designed to improve the conditions of energy trading in Europe and to promote the development of a sustainable and liquid European wholesale market. It was established in 1999, and today it includes more than 100 energy companies operating in over 27 countries. EFET is an independent non-profit organization, funded solely by member companies and governed by a Board.

EFET main activities comprise:

- 1) Work on standardisation and harmonisation of energy contracts and electronic transaction data exchange;
- 2) Advocating policies, regulatory measures and market operational rules to help develop the wholesale energy market;
- 3) Providing support to European institutions in dealing with matters relevant to energy trading by organizing seminars and meetings;
- 4) Promotion of improved understanding of energy trading through responding to media inquiries and providing educational materials to the general public;
- 5) Maintenance of strategic alliances with relevant national and international energy associations;
- 6) Creation of business-related networking opportunities through European projects, meetings, conferences and events;

EFET is managed by four committees:

- Electric Energy Committee,
- Gas Committee,
- Legal Committee and
- Business Process Standardisation Committee,

EFET’s ultimate purpose is a wholesale European energy market with no boundaries.

As stated above, one of the most important activities of EFET is drafting **standardized energy contracts**, being efficient means and prerequisites for optimising the potential benefits of the liberalisation of the European energy industry.

Particularly important in this sense are the energy contracts related to electricity trading, as is the General Agreement concerning the Delivery and Acceptance of Electricity (the “**EFET Agreement**”). The purpose of the EFET Agreement is to regulate all transactions between the contracting parties, in regard to purchase, sale, delivery and acceptance of electricity: On the other hand, it also regulates Options on the purchase, sale, delivery and acceptance of electricity. Each of these transactions is regarded as an Individual Contract, which together with the EFET Agreement constitutes one single agreement. At the same time, the provisions of the EFET Agreement represent an integral part of each Individual Contract.

The EFET Agreement has been drafted as a standard form document. Changes in the text are to be identified in the **Election Sheet** (which is an integral part of the EFET Agreement) and not in the body of the document.

The advantage of using the standard form of the EFET Agreement with the Election Sheet is to reduce the time for a party to review the terms of another party’s documentation. This benefit is lost if the body of the EFET Agreement is amended or retyped. If any changes are made to the main body of the EFET Agreement by a party, these should be highlighted in bold type for the benefit of the other party.

What is even more important, through an Election Sheet contracting parties can exclude or modify the application of certain (NOT ALL) provisions of the EFET Agreement, and can also add some new provisions.

The **key feature** of the EFET Agreement is that it **equally protects both contracting parties**, and that is precisely the reason why it is so widely accepted among electricity trading companies throughout Europe.

Nevertheless, in the process of conclusion of the EFET Agreement there are some issues which proved to be very sensitive for the contracting parties when negotiating the terms under which this agreement is to be concluded. From the experience in practice so far, below are the three questions on which contracting parties often spend most of their time during negotiations:

- 1) Non-Performance Due to Force Majeure;
- 2) Limitation of Liability;
- 3) Governing Law and Arbitration.

NON-PERFORMANCE DUE TO FORCE MAJEURE

The most important aspect of this article of the EFET Agreement is the mere **definition** of the Force Majeure. Namely, due to severe legal consequences envisaged by the EFET Agreement in case of failure to deliver or accept electricity (which is not caused by any event of the Force Majeure), each of the contracting parties is very careful when defining what kind of events can be considered as the Force Majeure.

In this regard, the EFET Agreement offers to the contracting parties its own version of this definition. However, this version can be altered by the will of the contracting parties, since this is one of the articles where the EFET Agreement lets its future signatories to choose another definition of the Force Majeure through the Election Sheet.

LIMITATION OF LIABILITY

Through this article of the EFET Agreement the contracting parties seek to protect their assets from the numerous undesirable actions of the other side and thus it is perfectly understandable why the contracting parties insists so much on this area of negotiations.

In the EFET Agreement, this liability is by default limited to actual damages caused to the other contracting party. As regards this article of the EFET Agreement, the contracting parties have the option to apply this article as it is written in the agreement itself, to amend it, or to replace its content in entirety by introducing completely new article.

GOVERNING LAW AND ARBITRATION

Governing Law is the field of negotiations where the contracting parties are least prepared to indulge each other, having in mind that both want to have the EFET Agreement construed according to the law they are better familiar with.

On the other hand, at least in practice, the contracting parties are more inclined to opt for the Arbitration, rather than for the Court, as an institution where the dispute (if any) will be brought. There are numerous reasons for that, some of them being costs of the proceedings, duration of the proceedings etc. which is all more efficiently handled by the Arbitration.