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USAID Regulatory Reform and Energy Sector Restructuring Project

**Latvia – Action Plan for the Development of a
Competitive Market for the Electric Power Sector – Final
Report**

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GRADUAL DEVELOPMENT OF THE BALTIC ELECTRICITY MARKET

ACTION PLAN FOR 1999-2001

A conference on *Gradual Development Options of the Baltic Electricity Market* was held in Riga, Latvia, on 7-9 December 1998. This conference was organized by the Latvian Privatization Agency (LPA) and its objective was to enable representatives of the power companies, Ministries of Economy, and privatization agencies of Estonia, Latvia, and Lithuania to discuss restructuring and privatization of the electricity market. The conference participants concluded that it would be a good idea to form a committee for the purpose of writing electricity market rules so that a single market could be established in Estonia, Latvia, and Lithuania for transactions involving the high voltage network. The committee would consist of representatives from each of the three countries and would be assisted by consultants with experience in power sector restructuring. The committee would have to complete its work in time required to enable a competitive electricity market with Third Party Access and an Estonia-Finland interconnection to be fully operational in three years' time - by the last quarter of 2001.

On December 18 the LPA sent letters to the three Ministries of Economy, proposing the formation of such a committee. However, the Ministries have not announced a decision on this question. There is a possibility that the issue will be discussed at the next quarterly meeting of the Baltic Energy Council (6 April 1999).

The purpose of this report is to present a proposal to LPA and the Ministry of Economy of Latvia concerning the next steps in the development of the electricity market in the Baltic countries.¹ This proposal is based on the presentations and the viewpoints expressed in roundtable discussions at the conference on *Gradual Development Options of the Baltic Electricity Market*. The following section provides a review of the

Power sector restructuring since 1991

When the Baltic countries were internationally recognized as independent countries, in September 1991, each country had a vertically integrated state enterprise in the power sector. Each power system had generation, transmission, and distribution assets. Ignalina nuclear station became a separate state enterprise owned by the Government of Lithuania, but the right to purchase all of the electrical output of Ignalina was given to the Lithuanian State Power System, the predecessor of Lietuvos Enerģia.² Import and export transactions were controlled by the three power systems. In April 1992 the Baltic

¹ This report was prepared by Bechtel Consulting under a contract with the U.S. Agency for International Development. The objective of USAID energy sector technical assistance in Latvia is to help the LPA and the Ministry to establish the legal and regulatory framework necessary for privatization of Latvenerģo.

² During the Soviet period Ignalina nuclear station was outside the management structure of Litovenerģo.

Energy Council was formed and Dispatch Center Baltija was restructured as a joint venture of the three power systems. An agreement on parallel operation of the Baltic countries was signed in 1992 and substantially revised and updated in 1994.

When the Baltic countries regained their independence the amount of generating capacity owned by industrial enterprises and local governments was relatively small – roughly 1 percent of total generating capacity in the Baltic countries – and most of it was oil- or gas-fired capacity. Because no independent power plant or municipal CHP plant could compete with the generating resources of the vertically integrated power systems, or with Ignalina, there was no urgent need to establish a competitive market in which IPPs and small CHPs sell energy to distribution networks or large customers. Moreover, in the three years after national independence was achieved, oil and gas prices increased sharply and electricity demand fell 40 percent. Consequently there was no urgent need for the Baltic countries to construct new generating capacity. Power system stability was achieved while maintaining parallel operation with Russia and Belarus. Because the high voltage network was still in reasonably good condition, there was no urgent need to construct new transmission lines. The decline in electricity demand allowed the three countries to “use up” the power sector assets inherited from the Soviet period and defer major capital expenditures such as the reconstruction of oil shale power stations in Estonia.

Since April 1992 the ownership structure of the power sector has changed, but these changes have not significantly transformed the electricity market.

- District heat systems have been separated from power system ownership in Tallinn, Riga, Vilnius, Kaunas, and a few other cities. In Estonia and Latvia the CHP stations remained under power system ownership but in Lithuania they were transferred to municipal ownership.
- About 14 percent of the shares of Lietuvos Energija have been privatized, and of this total about 5 percent is currently owned by Vattenfall. Lietuvos Energija stock is traded on the Vilnius stock exchange.
- Two low-voltage networks in Estonia (Narva and Laanemaa) were separated from Eesti Energia in 1997 and privatized in 1998.

Today there are proposals and plans to continue restructuring of the ownership of the power sector in all three countries. Daughter companies might be formed within each power system, but the legal framework for daughter companies remains to be defined. Several Independent Power Plants (IPPs) have been proposed but no IPP larger than 20 MW is under construction or operating. A joint venture among Helsinki Energy, Pohjolan Voima OY, Graninge AB, Eesti Energia, and ABB is being formed to construct a transmission system interconnection between Estonia and Finland. Proposals to construct a transmission interconnection between Lithuania and Poland have also been discussed. The Estonia-Finland connection (Estlink) appears to be a stronger project from a commercial standpoint. In Tallinn and Tartu, Estonia, the district heat systems are in the process of privatization.

In addition to restructuring of ownership, the power systems have started the process of functional unbundling of generation, transmission, and distribution activity. Functional unbundling will be needed to comply with the EU Electricity Directive as well as the

energy laws of each Baltic country. Although it would be technically possible to create a Baltic electricity market simply through functional unbundling of the existing assets of the three power companies, this model of market development has not been selected. Government policies of each country support the formation of new companies, such as low voltage network companies, and further privatization. IPPs are possible in Latvia and Estonia. Power systems have also been involved in management reorganization and administrative restructuring.³

Russia has become an exporter of electricity to Latvia, in competition with Estonia and Lithuania, but despite its internal restructuring the Unified Power System of Russia still acts as a single entity in the Baltic electricity market. The power system of Belarus also acts as a single entity in transactions with Russia and Lithuania. The development of a competitive Baltic electricity market would be strengthened if individual Russian energos could participate in transactions with Baltic electricity market participants, but the safest assumption for planning purposes is that RAO EES Rossiya will continue to have a monopoly over international trade in electricity. A market would also be strengthened if the power sector of Belarus could improve collections from domestic customers and conduct transactions in hard currency, but the safest assumption is that transactions with Belarus will not be part of the normal settlement system for the Baltic electricity market for the next five years, at least.

Proposed electricity market structure

At the 7-9 December 1998 conference most of the key power sector organizations (other than electricity consumers) from Estonia, Latvia, and Lithuania had an opportunity to present their views. Therefore the objective of this Action Plan is not to discuss alternative models of power system structure, but to present one model as the "target" for the Baltic electricity market and suggest a way to approach this target through a gradual step-by-step process. In this proposal, the ultimate target is a market structure with the following characteristics:

- 1 A bilateral contract market in which capacity payments are permitted, and each Baltic country is allowed to build and operate sufficient generating capacity within its borders to meet its own peak demand and maintain an installed capacity reserve (cold reserve)
- 2 Continued AC interconnection with Russia and Belarus, providing the possibility of continued electricity trade with these countries
- 3 An Estonia-Finland DC interconnection with access to all power systems willing to invest in transmission capacity
- 4 An hourly spot market based on the Nord Pool model
- 5 Integration of the Baltic spot market into Nord Pool, using transmission capacity from the Estonia-Finland link

³ The term *restructuring* is not precise. There are three processes – restructuring of ownership, functional unbundling, and management reorganization – that are happening at the same time.

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- 6 Compliance with the EU Electricity Directive, including the provisions allowing Qualified Customers to negotiate with producers
 - 7 A competitive market for ancillary services, with the objective of increasing system reliability and minimizing the cost of ancillary services

Point 1 represents a compromise between two objectives (a) national independence and national security, which would dictate that each country has a right to build the generating capacity needed to meet its own electricity demand, and (b) unrestricted market competition, which would enable countries with low-cost generating resources to prevent their neighbors from building higher-cost generating resources. Point 1 is particularly important for Latvia, which will have to either depend on imports or attract investment in new generating capacity within its borders.

Because the conference participants agreed that there should be one set of rules for the three countries, Point 1 does not allow any single country to establish market restrictions or preferences. There are three reasons why it is logical to have a single electricity market in Estonia, Latvia, and Lithuania: (1) the countries are too small to have separate markets, (2) it is technically difficult to divide the Baltic power sector into three "pieces," because the power stations and transmission lines were not designed to enable each country to operate independently of its neighbors, and (3) a "free trade" policy toward the electricity market is not fair to the producers unless all three countries play by the same rules.

If Point 1 simply stated that "each Baltic country is allowed to build and operate sufficient generating capacity within its borders to meet its own peak demand and maintain an installed capacity reserve (cold reserve)" there would be a need to explain how this goal will be achieved. Capacity payments are recommended in this Action Plan, for three reasons: (1) they allow competition among IPP projects, (2) they have been implemented successfully in the United States and in Chile, Argentina, Peru and other competitive electricity markets, (3) they can provide the necessary incentives for private sector investment, and (4) they can be set at fixed price levels per kW per year and included in the Market Rules, to encourage transparency of the market. However, the conference did not include a roundtable discussion on the issue of capacity payments. It would be possible to consider alternative approaches, such as IPP contracts which are protected from market competition – contracts in which the price per kWh can be higher than the competitive level.

Points 1 through 5 would probably be approved by a majority of the participants in the roundtable discussions at the December 1998 conference. A three-year timetable for implementation was informally agreed upon, so all of these measures might be implemented by the end of 2001. Points 2 and 3 (connections with Russia, Belarus, and Finland) received strong support, but some of the participants were skeptical about points 4 and 5 (the hourly spot market integrated into Nord Pool). Point 6 (compliance with the EU Directive) was considered to raise a number of complications and potential problems, but all of the countries are seeking EU membership and therefore all of the power systems ultimately plan to comply with the Directive. The participants agreed that some sort of step toward Qualified Customer participation should be made by 2001 but full compliance with the EU Directive is probably not needed in 2001. The timetable of EU integration is unknown, but it appears that Estonia will be the first to join the EU. At that point the percentage of the market opened to Qualified Customers

in Latvia and Lithuania might be smaller than in Estonia, but the market structure (Single Buyer, Negotiated TPA, or Regulated TPA) should be similar in all three countries. Point 7 (the ancillary service market) was not really under discussion at the conference but the principle of competition among ancillary service providers is based on Finnish and Spanish power system experience and might be considered a goal of Nord Pool integration. Points 7 could be deferred until 2002 or later.

Points 1 through 7 do not specifically address the interconnection between Lithuania and Poland. The conference participants did not reach a conclusion regarding this interconnection, and at present the future of the Power Bridge project is uncertain.

Electricity consumers were not represented at the December 1998 conference, and strategic investors had a very limited representation.⁴ However, consumers and strategic investors are not the key decision-makers concerning Points 1 through 5. A single Baltic electricity market will not be formed until the three Baltic power systems agree to work together on the Market Rules and receive a "green light" from the three Ministries of Economy.

Proposed phases of Baltic electricity market development

The market structure described above is an ultimate target, but it must be achieved through gradual steps. In this Action Plan it is proposed that the Market Rules should be developed in five phases.

Phase of market development	Time needed to write Market Rules	Start date for writing the Market Rules	Completion date for writing the Market Rules
I Increased transparency of the monthly spot market	6 months	1 November 1999	1 May 2000
II Opening up the spot market	6 months	1 March 2000	1 September 2000
III Integration with Nord Pool	6 months	1 July 2000	1 January 2001
IV Opening up the bilateral contract market	6 months	1 November 2000	1 May 2001
V Restructuring the ancillary services market	6 months	1 March 2001	1 September 2001

According to this proposed schedule the first draft of the Market Rules would be completed by 1 May 2000. Therefore the official start of the new spot market (Phase I)

⁴ NRGenerating International B V participated in the conference, and the conference materials contained statements submitted to LPA by Eastern Generation, AS Laanemaa Elektrivork (an affiliate of IVO in Estonia), and HEW Power Ventures.

could be scheduled as early as 1 June 2000, but the date would be selected by the Market Rules Committee. From an administrative standpoint this would be a major change in the electricity market, but prices for electric energy traded among countries would be established competitively on a monthly basis, just as Latvenergo's import prices are established today. At present there is a monthly bidding procedure in which Latvenergo receives bids from Eesti Energia, Lietuvos Energia, and RAO EES Rossiya and compares the price per kWh as well as other terms and conditions, and announces a schedule of kWh purchases for the coming month. This is the predecessor of the spot market that could operate in June 2000. The number of buyers and sellers in 1 May 2000 might be larger than it is today, but the driving force behind any change in the identity of buyers and sellers would be the power sector restructuring and privatization programs of the governments of the three countries.

To implement Phase I it will be necessary for the three power companies to select the entity that will operate the spot market, and receive the necessary government approvals. There are four possibilities: (1) a company owned by Nord Pool or by its owners - Statnett, Svenska Kraftnat, and Fingrid, (2) a company formed by the Riga, Tallinn, and Vilnius stock exchanges, (3) a company which has set up or operated an electricity exchange outside Nord Pool, or (4) a company formed by the owners of the high voltage network - Eesti Energia, Latvenergo, and Lietuvos Energia. To open the exchange in the year 2000 (for example, in June 2000) a decision will be needed in 1999, and therefore it is proposed that the Market Rules Committee should make a recommendation concerning the choice of spot market operator. In other words the committee should not just write the rules for Phase I but help to implement them.

To implement Phases II through V there is no need for the three power systems (or the three governments) to set up a new entity. Cooperation with Nord Pool is needed to implement Phase III but there are no obstacles to such cooperation. Cooperation with DC Baltija is needed in every phase, and especially in Phase V. DC Baltija generally supports the principle that the Baltic countries should have a single electricity market.

According to the schedule proposed above, the final stage in the development of the Market Rules would be completed by 1 September 2001. Therefore the earliest possible date for implementation of Phase V of the Market Rules would be roughly 1 October 2000. It is not necessary for the Market Rules Committee to try to rush from Phase I to implementation of Phase V, however, and it is possible that one to three years are required to implement Phase III. The difficulty with implementing Phase III is that the capacity of Estlink may be too small to equalize spot prices between Finland and Estonia, and therefore the Norway-Sweden-Finland market may operate as a separate price area from Estonia-Latvia-Lithuania. In addition there may be transmission constraints that force the three Baltic countries to be divided into two or three price areas. There are not enough buyers and sellers in the Baltic electricity market to maintain liquidity of the spot market when there are so many price areas, and therefore it is possible that true integration with Nord Pool will not be possible until the transmission constraints on the spot market are removed. The biggest single investment is likely to be an expansion of the capacity of Estlink. The initial stage of Estlink was planned to be only 200 MW, but the technology developed by ABB allows a much larger DC interconnection to be constructed through incremental capacity additions.

The objective of Phase IV - opening up the bilateral contract market - is to comply with the EU Electricity Directive on the basis of a Nordic power market model (a

combination of a spot market and bilateral contracts) From a legal standpoint the rules for Phase IV should be implemented in Estonia by the time Estonia joins the EU, even if there is a delay in the implementation of Phase III - integration with Nord Pool From a practical standpoint one of the best ways to bring Estonia into the "single electricity market" envisioned by the EU is to proceed with Nord Pool integration so that bilateral contracts can be negotiated in a competitive marketplace involving EU member countries (Sweden and Finland, at a minimum, and perhaps also Denmark)

If Phase III is successful, the futures markets in Nord Pool and in EL-EX (Finland) will be able to offer products tailored to the spot market in the Baltic countries, if such products are needed⁵ Possibly the entity operating the Baltic spot market will offer futures products, such as the standard Eltermin contract (Nord Pool) The Market Rules Committee should not attempt to guide the futures market because it is already well-established in Nord Pool

The Market Rules project consists of eight steps, as shown below The first three steps involve the organization of the work and the following five steps correspond to the phases of market development

Step	Activity	Duration	Start	Finish
1	Formation of the Market Rules Committee	4 months	1 March 1999	1 July 1999
2	Presentations to other power systems	4 months	1 June 1999	1 October 1999
3	Organization of technical studies and contacts	4 months	1 September 1999	1 January 2000
4	Increased transparency of the monthly spot market	6 months	1 November 1999	1 May 2000
5	Opening up the spot market	6 months	1 March 2000	1 September 2000
6	Integration with Nord Pool	6 months	1 July 2000	1 January 2001
7	Opening up the bilateral contract market	6 months	1 November 2000	1 May 2001
8	Restructuring the ancillary services market	6 months	1 March 2001	1 September 2001

⁵ In the oil industry, futures markets do not develop in small countries Crude oil futures prices are largely determined by two products – the Brent contract offered by the London commodity exchange and the West Texas Intermediate contract offered by the New York Mercantile Exchange

Step 1 Formation of the Market Rules Committee

Objective The purpose of this step is to obtain formal, legal approval for a committee to start work on the Market Rules that will be used to operate a single Baltic electricity market

- 1 1 The three power systems hold informal meetings to discuss the idea of forming the Market Rules Committee and discuss ways to obtain formal approval from the three governments. A preliminary list of committee members might be prepared. The committee should have an odd number of voting members (for example, 9 voting members), including at least one representative from each Baltic power system. The committee may also have non-voting members.
- 1 2 The three power systems request the three governments to give formal approval for the Market Rules Committee. One way to implement this step would be to present the issue at the 6 April 1999 meeting of the Baltic Energy Council. A mechanism for appointing committee members must be formally approved.
- 1 3 The Committee selects a Chairman and defines the responsibilities of the Chairman and the other members of the Committee. For example, the Committee could rotate the Chairmanship according to an agreement similar to the Nordel agreement⁶.
- 1 4 The Committee makes arrangements to obtain legal advice. One possibility would be to hire a law firm that has experience in drafting the foundation documents for commodity exchanges or electricity exchanges operating in EU countries.
- 1 5 The Committee requests approval to select the entity that will operate the spot market, or establishes a selection procedure under its jurisdiction. Government intervention in the activities of Nord Pool, EL-EX, the Amsterdam Power Exchange, the Riga Stock Exchange, the Tallinn Stock Exchange, the Vilnius Stock Exchange, or companies such as OM Energy should be limited to oversight by the Securities Market Commissions of the three Baltic countries.
- 1 6 The Committee establishes a web site to distribute information about its activities. This site would be similar to www.balticring.com (the site that is used to distribute information about the Baltic Ring study). The principal language at this web site will be English, but additional languages such as Swedish and Russian should be considered by the Committee.

⁶ The international agreement governing Nordel is available on the Internet and it might be used to draft an agreement concerning the Market Rules Committee. However, Nordel has a very different function.

Step 2 Presentations to other power systems

Objective The purpose of this step is to provide neighboring power systems with information about the Market Rules Committee and ensure that the committee will develop plans that are consistent with the Baltic Ring and Baltic Sea cooperation

- 2 1 The Committee prepares a technical paper or presentation on the state of metering and communications in the high voltage network, and the steps needed to implement billing and settlement with (a) data on monthly power flows among all market participants and (b) data on hourly power flows among all market participants. Special attention should be given to the interconnections with Finland, Russia, Belarus, and Poland. The document should be available for downloading from the web site.
- 2 2 The Committee prepares an economic and financial report on the existing electricity market in the Baltic countries. The report should list the power purchase agreements and transit (wheeling) agreements that exist and should identify the parties to these agreements and the expiration dates. Ideally the report should provide data on the capacity obligations (in kW) and energy obligations (in kWh) reflected in these contracts. The report should also explain the procedures used by power systems to obtain competitive bids. It is not necessary to provide price data and it is not necessary to publish any of the agreements. The document should be available for downloading from the web site.
- 2 3 The Committee prepares a document describing the proposed phases of Baltic electricity market development and the schedule of steps to be taken by the Committee. The format of the document might be similar to this Action Plan. If the Committee can reach agreement on the ultimate "target" model for the electricity market in the Baltic countries, the document should describe this model. An appendix listing proposed investment projects such as IPPs or transmission interconnections could be included. The document should be available for downloading from the web site.

Step 3 Organization of technical studies and contracts

The purpose of this step is to establish contacts with organizations that might own and operate the spot market trading system and organizations that can provide technical data or financial support for the activities of the Market Rules Committee

- 3 1 The Chairman designates a member of the Committee who is responsible for establishing contacts with Baltrel, Nordel, Centrel, UCPTe, and individual members of these associations. The Chairman also designates a member of the Committee who is responsible for establishing contacts with RAO EES Russia,

Belenergo, and various energos in northwest Russia⁷ Possibly one person will be designated for all contacts with power systems outside the Baltic countries

- 3 2 The Chairman designates a member of the Committee who is responsible for establishing contact with organizations that might operate a Baltic electricity exchange These organizations include Nord Pool, EL-EX, the Amsterdam Power Exchange, the Riga Stock Exchange, the Tallinn Stock Exchange, the Vilnius Stock Exchange, and companies such as OM Energy
- 3 3 The Chairman designates a member of the Committee who is responsible for contacts with the European Commission (specifically, DG XVII and DG I) This person will be responsible for identifying (and resolving, if possible) questions related to EU compliance
- 3 4 The Chairman designates a member of the Committee who is responsible for establishing contacts with organizations that are able to offer funding for technical studies and consultants The purpose of these contacts is simply to find out whether outside funding is available under terms and conditions that will not delay the development of the electricity market If outside funding is not available, the three power systems will have to share the expenses of the Market Rules Committee
- 3 5 The Chairman prepares a proposal to the Committee concerning the question whether the Committee should hire consultants The Committee then decides whether consultants are needed, what amount should be budgeted for their fees and expenses, and what procedure should be used to select them If consultants will be hired by individual power systems but not by the Committee, the Committee should establish rules for the sharing of consultants' reports and procedures for maintaining confidentiality Ideally the voting members of the Committee will have approximately "equal" access to information concerning the issues to be decided by the Committee

Step 4 Increased transparency of the spot market

The purpose of this step is to write the Market Rules for a monthly auction that is open to IPPs as well as power systems, and select an organization to own and operate the spot market

- 4 1 The Committee prepares a document outlining the basis principles of the monthly spot market to be established in Phase I of market development For example, producers may be permitted to sign bilateral agreements containing capacity payments, but the amount of capacity payment per kW may be set by the Committee and calculated on the basis of the cost of a new gas-fired combined cycle turbine In the monthly auction, separate prices may be established for three time zones (peak, mid-range, and off-peak) Participation

⁷ It is reasonable to assume that RAO EES Rossi will participate in the spot market, either directly or through an authorized representative Belenergo will probably be unable to purchase energy in the spot market, due to non-payment problems, but it may sign bilateral agreements outside the spot market

in the spot market may be limited to power systems, distribution networks, and power stations larger than 20 MW. The Committee must select a method of payment for ancillary services associated with the operation of the spot market.

- 4.2 The Chairman designates a member of the Committee responsible for preparing a complete draft of Market Rules for Phase I. The Chairman sets a deadline for completion of this draft – for example, in 60 days.
- 4.3 The draft Market Rules are formally presented to the Committee, and the Chairman circulates the draft Rules to request comments. At a minimum, the draft must be given to the Estonian Energy Market Inspectorate, the Latvian Energy Regulatory Council, the Lithuanian Control Commission for Energy Prices and Energy Activities, and DG XVII of the European Commission. The Chairman must set a deadline for receipt of comments - for example, 30 days.
- 4.4 The Committee prepares a final draft of Market Rules for Phase I, based on the comments received.
- 4.5 The Committee conducts a competitive tender to select the organization that will own and operate the Baltic spot market. At the beginning of the tender process the Committee will publish the evaluation criteria to be used to select the winner. Based on the proposals received and the evaluation criteria, the Committee will make a selection and request a formal commitment from the organization that was chosen.⁸

Step 5 Opening up the spot market

The purpose of this step is to modify and expand the Market Rules to support a daily auction and increase the number of buyers and sellers in the Baltic spot market. This step is merely a transition to Step 6.

- 5.1 The Committee prepares a document outlining the basic principles of the spot market to be established in Phase II of market development. For example, the monthly auction may be replaced by a daily auction and the number of time zones may be increased from three (peak, mid-range, off-peak) to 24 (hours). Additional participants such as Qualified Customers may be allowed to participate in the spot market. The method of payment for ancillary services should include some form of billing and settlement for all market participants.
- 5.2 The Chairman designates a member of the Committee responsible for preparing a complete draft of Market Rules for Phase II. The Chairman sets a deadline for completion of this draft.
- 5.3 The draft Market Rules are formally presented to the Committee, and the Chairman circulates the draft Rules to request comments. The Chairman must set a deadline for receipt of comments.

⁸ Because the tender process is similar to the privatization of a joint stock company, the Committee may choose to request assistance from one of the three privatization agencies.

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- 5 4 The Committee prepares a final draft of Market Rules for Phase II, based on the comments received

Step 6 Integration with Nord Pool

The purpose of this step is to modify and expand the Market Rules to enable the Baltic spot market to be integrated with Nord Pool, so that the Baltic countries become a Nord Pool price area or a set of Nord Pool price areas

- 6 1 The Committee prepares a document outlining the basis principles of the spot market to be established in Phase III of market development. The Elspot contract issued by Nord Pool will be used as the model for defining a similar product in the Baltic electricity exchange. Careful attention must be given to the delineation of price areas within the Baltic countries, it is possible that these price areas will not be defined by national borders
- 6 2 The Chairman will contact the President of Nord Pool to determine the best way the Committee can support the process of expansion of Nord Pool to the Baltic countries. Although the exchange of information among System Operators will not be the Committee's responsibility, the Committee will need to know the overall timetable for Nord Pool expansion
- 6 3 The Chairman designates a member of the Committee responsible for preparing a complete draft of Market Rules for Phase III. The Chairman sets a deadline for completion of this draft
- 6 4 The draft Market Rules are formally presented to the Committee, and the Chairman circulates the draft Rules to request comments. The most important comments will be those received from Nord Pool. The Chairman must set a deadline for receipt of comments
- 6 5 The Committee prepares a final draft of Market Rules for Phase III, based on the comments received, and submits this draft to Nord Pool. At that point the implementation process is entirely governed by Nord Pool

Step 7 Opening up the bilateral contract market

The purpose of this step is to modify and expand the Market Rules so that Estonia, Latvia and Lithuania comply with the EU Electricity Directive and have an electricity market structure based on Nordic countries' experience

- 7 1 The Committee prepares a document outlining the basis principles of the bilateral market to be established in Phase IV of market development. The eventual objective must be the opening of the bilateral contract market to all producers and all qualified customers located in EU member countries. To create a single electricity market for the Baltic countries, it will probably be necessary to open the whole Baltic electricity market to producers and qualified customers as soon as Estonia joins the EU

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- 7 2 The Chairman designates a member of the Committee responsible for preparing a complete draft of Market Rules for Phase IV. The Chairman sets a deadline for completion of this draft.
 - 7 3 The draft Market Rules are formally presented to the Committee, and the Chairman circulates the draft Rules to request comments. The Chairman must set a deadline for receipt of comments.
 - 7 4 The Committee prepares a final draft of Market Rules for Phase IV, based on the comments received.

Step 8 Restructuring the ancillary services market

The purpose of this step is to modify and expand the Market Rules so that the market for ancillary services can be established on the basis of Nordic countries' experience. This market must be designed to minimize the cost of ancillary services and maximize the reliability of the power systems of Estonia, Latvia, and Lithuania.

- 8 1 The Committee prepares a document outlining the basic principles of the ancillary services market to be established in Phase V of market development. Close cooperation with Fingrid and DC Baltija will be necessary.
- 8 2 The Chairman will contact the Director of DC Baltija to request a forecast of the principal technical parameters of the ancillary services market, including a forecast of the capacity of the largest generating unit and a forecast of the various types of reserve capacity available to maintain power system stability following a sudden shutdown of the largest generating unit⁹.
- 8 3 The Chairman designates a member of the Committee responsible for preparing a complete draft of Market Rules for Phase V. The Chairman sets a deadline for completion of this draft.
- 8 4 The draft Market Rules are formally presented to the Committee, and the Chairman circulates the draft Rules to request comments. The Chairman must set a deadline for receipt of comments.
- 8 5 The Committee prepares a final draft of Market Rules for Phase V, based on the comments received.

⁹ It is reasonable to assume that the Market Rules Committee will allow Ignalina nuclear station to participate in both the spot market and the bilateral contract market. Therefore the Committee must ensure that the ancillary services market can support continued operation of Ignalina as indicated in the forecast provided by DC Baltija.

Appendices

- Appendix 1 *Agenda for the conference on Gradual Development Options of the Baltic Electricity Market, Riga, Latvia, 7-9 December 1998*
- Appendix 2 *List of participants in the conference on Gradual Development Options of the Baltic Electricity Market, Riga, Latvia, 7-9 December 1998*
- Appendix 3 *Agreement among the members of Nordel*
- Appendix 4 *Market Rules Participants Agreement for Georgian Wholesale Electricity Market Draft dated February 1998*

ACTIVITIES OF THE ENERGY REGULATORY COUNCIL IN 1998

The energy regulation in Latvia is performed by the Energy Regulatory Council (hereinafter – the Council) which launched its activities after the first staff of the Council was approved on 12 June 1996. By 6 October 1998, i.e. before the Energy Law came into force, the Council was carrying out its activities in accordance with the Law “On Regulation of Entrepreneurship in Energy Sector” passed on 27.09.1995.

In accordance with the Energy Law on 17.11.1998 the Cabinet of Ministers approved the Council in the following staff:

- | | |
|---------------|---|
| V. Baltiņa | - representative of the Ministry of Economy, |
| P. Barons | - representative of the Latvian Union of Municipalities, |
| Z. Brūvers | - representative of the Ministry of Environmental Protection and Regional Development, |
| J. Dauškis | - representative of the Competition Council – Deputy Chairman of the Energy Regulatory Council, |
| J. Garbovskis | - representative of an electricity supply utility, |
| V. Ilguns | - representative of Latvian Association of Heat Supply Utilities, |
| A. Lāgalvis | - representative of the Ministry of Agriculture, |
| J. Lūns | - representative of gas supply utility, |
| I. Meīšs | - representative of energy consumers – residents, |
| I. Šteinbuka | - representative of the Ministry of Finance |

The Council is a supervisory institution of the Ministry of Economy. The Licensing Office (hereinafter – the Office) which is subordinated to the Council organizes and implements fulfillment of decisions passed by the Council and prepares documents for consideration at the Council.

The administrative structure of the Council and the Office is illustrated in Appendix 1.

The Council as a state administrative body performs regulation of electricity supply, heat supply, natural and liquefied gas supply utilities. The position of the Council in the state administrative structure of the Latvian energy sector is illustrated in Appendix 2.

Main fields of operation of the Energy Regulatory Council, the most notable decisions and development of the legal framework in 1998

Eleven Council meetings took place in 1998 and the Council approved 142 orders

DEVELOPMENT AND APPROVAL OF NORMATIVE ACTS

The following secondary normative acts required by the Energy Law have been developed and approved

- Regulations of the Cabinet of Ministers No 449 "Regulations of the Energy Regulatory Council" dd 08 12 1998,
- Regulations of the Cabinet of Ministers No No 450 "Regulations of the Energy Consumers' Committee" dd 08 12 1998,
- Regulations of the Cabinet of Ministers No 451 "Amendments to the Regulations of the Cabinet of Ministers No 348 "Regulations on Licensing of Separate Types of Entrepreneurial Activity" of 7 October 1997" dd 08 12 1998,
- "Procedure in which energy supply utilities submit the calculated tariffs (draft tariffs) for consideration and approval", approved by order of the Council No 130 dd 01 12 1998,
- "Procedure in which energy supply utilities publish the approved tariffs in the newspaper "Latvijas Vēstnesis"", approved by order of the Council No 131 dd 01 12 1998,
- "Criterion and procedure of issuing licenses", approved by order of the Council No 129 dd 01 12 1998,
- "Procedure in which energy supply utilities pay licensing fee", approved by order of the Council No 127 dd 22 12 1998,
- "On delegation of functions to municipalities", approved by order of the Council No 136 dd 22 12 1998

APPROVAL OF TARIFFS OF ENERGY SUPPLY UTILITIES

In 1998 the Council evaluated and approved the following tariffs calculated by energy supply utilities

- natural gas tariffs and subscription fee for the JSC "Latvijas gāze" (see Appendix 3),
- electricity purchase and sales tariffs for subsidiaries of the joint stock company under privatization "Latvenergo",
- thermal energy sales tariffs for companies which sell thermal energy to the JSC "Rīgas siltums" - TPP-1, TPP-2, 5 industrial boiler houses as well as the JSC "Rīgas siltums" for the period October 1998 – September 1999 (see Appendix 4),
- thermal energy sales tariff for "TOMO", Ltd, which sells thermal energy to Rīga citizens on regular basis,
- maximum tariffs for sale of liquefied gas in 11, 21, 51, 50l and 27l cylinders without delivery, in tankers from gas filling stations, for motor transport in supplier's motor transport filling stations for licensed liquefied gas supply utilities in Latvia (see Appendix 5)

The approved average electricity sales tariffs (see Appendix 6) and differentiated sales tariffs according to groups of users (see Appendix 7) approved in November 1997 came into force on 1 January 1999. These tariffs are valid also in 1999.

The average costs structure of public services for one family (2-6 people) in Rīga in apartments with all amenities (incl. VAT) during the heating season 1998 – 1999 (forecast) is illustrated in Appendix 8.

DRAFTING AND APPROVAL OF THE TARIFF METHODOLOGY

- The liquefied gas tariff methodology has been drafted and approved

In accordance with the action plan approved by the Council on 12 December 1996 with an assistance from the USA consulting company "Bechtel" the Council drafted and in 1998 approved the tariff methodologies based on economic costs. These methodologies have been positively assessed by experts.

- Thermal energy tariff methodology approved by order of the Council No 22 dd 27 03 1998
- Natural gas tariff methodology approved by order of the Council No 34 dd 05 05 1998
- Electricity tariff methodology approved by order of the Council No 135 dd 22 12 1998

LICENSING OF ENERGY SUPPLY UTILITIES

In 1998 the Council issued licenses to

- 8 electricity supply utilities, which received 7 licenses for electricity generation in co-generation mode, 1 license for electricity distribution and 2 licenses for electricity sales,
- 39 heat supply utilities, which received 36 licenses for thermal energy generation, 21 license for thermal energy transmission and distribution and 17 licenses for thermal energy sales,
- 22 liquefied gas supply utilities, which received 14 licenses for liquefied gas storage and filling, 16 licenses for liquefied gas distribution and 22 licenses for liquefied gas sales

Two issued licenses were annulled in 1998. The pace of licensing of energy supply utilities is illustrated in Appendix 9.

The Energy Law stipulates that the Council will perform licensing of entrepreneurship with liquefied gas storage and inflation into reservoirs, cisterns or gas cylinders and its further distribution and sale to residents and companies, but will not perform licensing of entrepreneurship with liquefied gas which is used as motor transport fuel.

Currently the country experiences sharp increase in number of liquefied gas filling stations. If before the licensing of entrepreneurship with liquefied gas was initiated the liquefied gas filling stations were owned solely by the JSC "Latvijas gāze", then now liquefied gas filling stations owned by other companies are already operating in Rīga and its region as well as Daugavpils, Rēzekne and Bauska.

Unfortunately a more rapid development of business activities in this sector of public services is hindered by the insufficient framework of normative documents.

which are required for reasonable development of entrepreneurship with liquefied gas

For instance, when performing designing we are forced to use the old SNiPU produced in the former USSR in 1987 in which such distance and volume norms are defined that they can be hardly applied in cities. These problems have been solved, for instance, in our neighboring country Lithuania, where the building standards and norms approved in the European countries are in force and where there are 2 liquefied gas filling stations per every 100000 residents in average

Riga City Council gave its consent on principle for construction of a container-type liquefied gas filling station within the city. This will allow to install approximately 10 – 15 liquefied gas filling stations of this type in Riga city within the next year. As of 1 June 1998 there were 446600 cars in the country out of which $\frac{3}{4}$ were imported from Western Europe, USA, Japan and Southern Korea and approximately every fourth was equipped with liquefied gas facilities and prime costs of consumption of liquefied gas as fuel are for approximately twice as low as those for gasoline. We can view this with optimism for development of this type of entrepreneurship

In 1998 the Council commenced control of compliance with the provisions stipulated by licenses. By 31 December companies have to submit annual report on economic activity and action plan of the following year which shall contain information on compliance of the annual plan with the long-term development plan, extent of entrepreneurship, application of investments and credits, activities on increasing efficiency, etc., but by 30 April companies have to report on the pace of fulfillment of their action plans

OTHER ACTIVITIES OF THE COUNCIL

- Pro forma agreement on electricity supply was supplemented and approved,
- Validity term of methodology on electricity connection fee was prolonged

TRAINING, SEMINARS

During 1998 the Council members and Office employees improved their professional skills by participating in different seminars and training, the most essential of which are the following

- PHARE interstate training and co-operation program "Natural gas prices, tariffs and natural gas operator",

- USA Energy Association and USAID seminar for the Baltic countries “Regulation and Tariff Defining” ,
- different seminars on energy supply organized in Latvia

Legal and methodological framework of tariff calculation

Both the energy supply utilities, when calculating tariffs and submitting them to the Council, and the Council when evaluating the submitted tariff calculations, shall take into account the following normative acts

- the Energy Law,
- the law “On Rent of Apartments”,
- the law “On Municipalities”,
- the Regulations of the Energy Regulatory Council,
- procedure defined by the Cabinet of Ministers in which the apartment tenant or landlord settles payments for the received public services,
- regulations approved by the Cabinet of Ministers on electricity, thermal energy, natural and liquefied gas supply and use,
- procedure defined by the Council in which energy supply utilities submit the calculated tariffs (draft tariffs) to the Council for consideration and approval,
- tariff methodologies approved by the Council

Tariff defining as the regulatory instrument shall

- ensure protection of interests of energy consumers,
- promote efficient and rational operation of energy supply utilities,
- ensure transparency of tariff approval procedure

Electricity, natural gas and thermal energy tariffs are defined in accordance with the tariff methodologies approved by the Council. During the past years the Council and its executive body have done a serious job on drafting and improving the methodological framework of tariff calculations. Short information on this work is provided in the following sections

THERMAL ENERGY

“Thermal energy two-stage tariff methodology” and “Thermal energy tariff methodology” have been approved by order of the Council No 34 dd 03 07 1997

“Thermal energy two-stage tariff methodology” defines procedure in which calculation of two-stage tariffs for generation, supply and sales in technological sequence are performed. The variable and fixed portion of thermal energy costs are defined in each stage of technological chain and then tariffs for covering variable costs of the supplied thermal energy and fixed costs of the installed capacity are defined. Tariff of the supplied thermal energy directly depends on volumes of thermal energy to be delivered, but the installed capacity tariff depends mainly on the maximum capacity (permitted maximum thermal capacity) of the thermal energy system design owned by thermal energy users.

“Thermal energy tariff methodology” defines procedure in which calculation of one-stage tariffs for generation, transmission – distribution and sales in technological sequence are performed. Compared with the “Thermal energy two-stage tariff methodology”, here costs of thermal energy supply utilities are not distributed into variable and fixed costs as total costs are defined. Thermal energy tariff for generation, transmission – distribution and sales can be defined separately, it is also possible to define thermal energy (average) tariff by dividing expenses in generation, transmission – distribution and sales with the designed volumes of thermal energy to be transferred to users on the possession margin.

Thermal energy tariffs of all the below mentioned thermal energy supply utilities, except for JSC “R gas siltums”, for the period October 1998 – September 1999 were approved according to the so-called one-stage tariff methodology.

Thermal energy tariffs of the JSC “R gas siltums” for the period October 1998 – September 1999 were approved in accordance with the “Thermal energy tariff methodology” based on economic costs, which was approved by order of the Council No 22 dd 27 03 1998. Thermal energy tariffs of the JSC “R gas siltums” for residents for 1995 – 1999 are indicated in Appendix 10.

For the defined thermal energy tariffs to have the right application in specific calculations the interim “Methodology for settling payments for the consumed thermal energy” approved on 10 09 1996 was revised. The Methodology provides that all landlords, independent of the ownership form, change over to payment settlement procedure with tenants, defining a fee for hot water supply and heating on monthly basis, taking into account the existence of thermal energy meters and observing the approved thermal energy tariffs. The Methodology indicates the

procedure of settling payments for the consumed thermal energy in case the heat meters are installed on the inlet of the building (on the ownership margin), on the branch of the heating network or in one of the heat exchangers of buildings before or after the possession margin, as well as in case the heat meters are installed only for registration of thermal energy used for heating or only for hot water preparation or in case there is no heat meter at all. It shows according to which formulas and norms calculations for hot water and heating of 1 m² of the floor space shall be performed. The Methodology is supplemented with an Appendix with examples.

Owners of thermal energy supply utilities and landlords or administrators of buildings have to take into account Parts I and II of the Methodology when settling payments for the consumed thermal energy. Part III of the Methodology is a recommendation.

NATURAL GAS

The Natural and Liquefied Gas Tariff Methodology, approved by order of the Council No 24 dd 02 05 1997, was in force till the end of 1997. The natural gas tariff calculation was based on the anticipated gas consumption balance, generation expenses and the required profit level, the procedure of their differentiation based on the market economy principles, allocation of gas storage and transportation costs according to technological process stages and accordingly - variable and fixed costs.

The Natural Gas Tariff Methodology was approved by order of the Council No 69 dd 11 11 1997 but the Liquefied Gas Tariff Methodology was approved by order No 36 dd 05 05 1998.

The Natural Gas Tariff Methodology states that tariffs are defined taking the following as the basis: the natural gas base volumes of the year, constituting 80% out of the average amount of gas that has been actually sold to industrial consumers during the previous year and the anticipated gas consumption amount for the current year.

In accordance with this Methodology, the JSC "Latvijas gāze" calculates and the Council approves the natural gas price and subscription fee to residents but for industrial consumers – the maximum tariff level at the defined gas base amount.

Prices mentioned in the agreement on gas supply of the JSC "Latvijas gāze" with each specific industrial consumer are defined within the maximum tariff approved by the Council, but by order of the Council No 35 dd 05 05 1998 the JSC "Latvijas gāze" can define higher tariffs to the industrial consumers than those defined as maximum in case there is an agreement with the industrial consumer and

the Council approves it (a new gas supply system is being built or the existing one is expanded and additional financing shall be invested)

In order to arise interest in industrial consumers to increase natural gas purchases, the JSC "Latvijas gāze" foresees price discounts for industrial consumers for additional gas consumption after the required base volumes have been consumed

The average natural gas tariffs according to groups of consumers in Latvia for the period 1993 – 1999 are illustrated in Appendix 11

LIQUEFIED GAS

The Liquefied Gas Tariff methodology defines that liquefied gas delivery service price is formed as a result of mutual competition among gas supply utilities

The Council approves the maximum tariffs for liquefied gas sales in 1 l, 2 l, 5 l, 50 l and 27 l cylinders without delivery, in tankers from gas filling stations, for motor transport at the suppliers' motor transport filling stations

Maximum tariffs of liquefied gas are being approved excluding delivery and value added tax. Value added tax is being collected from consumers in the procedure stipulated by the law

ELECTRIC POWER

Electricity tariffs for 1998 were defined taking into account "Electricity Tariff Methodology for "Latvenergo" concern structure option" approved on 14 October 1997. This was the first time when costs of generation, transmission and distribution utilities were separated in the tariff methodology. In compliance with this methodology and in accordance with the pace of privatization of the company, the methodology provides calculation for defining electricity purchase – sales prices between generation and transmission, transmission and distribution utilities as well as transmission service and distribution service tariffs

The Electricity Tariff Methodology is designed to define the average electricity sales tariff first and then the differentiated electricity sales tariffs according to groups of users. Electricity tariffs are defined in such amount for energy supply utilities to be able to cover their energy resources production costs, costs of purchased electricity, costs of transmission and sales. Besides they shall earn profit for covering taxes, state dividend payments, interest rates of bank loans, ensure maintenance of the current capital, investment of new capital and coverage of social needs. The Methodology envisages provision of a common tariff in the country

independent of geographical region. In accordance with this Methodology, tariff defining is performed in two stages, i.e. the average sales tariff is defined and then the company mutual purchase – sales tariffs are defined. Restructuring costs of the state joint stock company under privatization “Latvenergo” are not displayed separately.

The comparative electricity prices for residents and industry in the countries of the Baltic Ring in 1997 are illustrated in Appendix 12. Comparison of electricity tariffs in the Baltic states (LVL/100 kWh) excl. VAT is illustrated in Appendix 13.

METHODOLOGY OF ECONOMIC COSTS

The so-called method of cost recovering and partially (in gas sector) in combination with the marginal price method was traditionally used in tariff defining. This method means that all costs cover all required expenses of the company but the Methodology did not envisage economic stimulation of the company to operate more efficiently. It is planned to change over to new integrated tariff defining methodologies which promote companies to increase their economic efficiency in 1998. During a stable economic development tariffs in Latvia would be defined for a period of 3 years and during these three years the company would be interested in decreasing costs, increasing operation efficiency as gains from efficiency improvements would stay at the disposal of the company till the following tariff review cycle.

The scheme of tariff defining of an integrated regulation stimulating more efficient operation and cost recovering regulation is illustrated in Appendix 14.

In 1998 the development of tariff methodologies of energy supply utilities, based on economic costs, was finalized.

Methodologies were developed, observing the principal issues of the action plan:

- costs for generation, transmission, distribution and sales were separated,
- the mechanism of reflecting inflation of fuel prices, imported energy and other costs was defined,
- evaluation of economic costs level was developed,
- analyses on economic impact was performed.

Methodologies envisage that

- tariffs are defined for the tariff cycle of three years,
- the defined tariffs are levelized and there is one tariff for the whole tariff cycle,
- during the 3 year cycle tariffs are being revised should the company costs deviate due to objective factors for more than 5% from those initially envisaged,
- costs for the three year cycle include increase of indices of inflation and planned company efficiency,
- costs are separated for generation, transmission, distribution and sales,
- costs are separated into controllable costs (costs ceilings defined) and uncontrollable costs (costs which the company can not affect),
- during the transition period the tariff review cycle shall be one year, i.e. tariff review cycle of three years shall be applied in cases when such defined tariffs are beneficial to energy consumers as the increase of efficiency indices of the utility will ensure lower electricity tariff for the forthcoming tariff review cycles,
- the tariff increase dynamics shall be evaluated comparing it with the increase dynamics of GDP, consumption and producers' prices as well as solvency of residents (see Appendix 15)

After development of tariff calculation examples for the three year cycle, work proceeds on improvement and introduction of this methodology

Budget of the Energy Regulatory Council

When the Council initiated its operation in 1996 it received an interest-free loan in amount of LVL 138000 from the State Property Privatization Fund financing which, following a mutual agreement, should be repaid in three stages in 1997 LVL 78000 were repaid, in 1998 - LVL 46000 were repaid, but in 1999 - LVL 14000 should be repaid. In accordance with the regulations of the Cabinet of Ministers No 444 "Regulations on Calculation of Licensing Fee for Energy Supply Utilities (Entrepreneurial Companies)" dd 03 12 1996 the Council collects annual fees for licenses from the licensed energy supply utilities. This fee is sufficient for ensuring repayment of expenses of the Council and the Office, also the loan

Starting with 1998, income from licensing fees was transferred to the state budget and grants from the Council income

Total expenses in 1998 constituted LVL 239 640, formed by grants from general income in amount of LVL 209 988 and residue of cash as of the beginning of the year LVL 29 652 (income from licensing fees)

The licensing fee in amount of LVL 240 710 was transferred to the state budget in 1998

**Tariffs approved by the Energy Regulatory Council
as of 01.01.1999**

Natural gas

For the joint stock company "Latvijas gāze"

Maximum tariffs of natural gas

for industrial consumers	60.70 LVL/1000 m ³
for motor transport	165.00 LVL/ 1000 m ³

Natural gas tariffs to residents

with gas meter installed	50.00 LVL/ 1000 m ³
without gas meter installed	
in apartments with centralised hot water supply	0.30 LVL/pers month
others	0.45 LVL/pers month

Subscription fee to residents

for everyday needs (stove, gas flow water heater)	0.95 LVL/month per each subscriber
for everyday needs and heating	2.60 LVL/month per each subscriber

Subscription fee discounts

to large families, acknowledged to be poor, invalids of I and II group living alone	
for everyday needs (stove, gas flow water heater)	0.45 LVL/ month per each subscriber
for everyday needs and heating	1.65 LVL/ month per each subscriber

**Tariffs approved by the Energy Regulatory Council
as of 01.01.1999**

Thermal energy

JSC "R gassiltums"	
to residents	18 53 LVL/Gcal (with pre-tax)
other consumers	16 20 LVL/Gcal
Subsidiaries of the state JSC under privatisation	
"Latvenergo"	
Rīga TPP – 1 (including "Andrejsala")	9 78 LVL/Gcal
Rīga TPP - 2	8 89 LVL/Gcal
JSC "Kom ta"	14 32 LVL/Gcal
JSC "Bolder ja"(excl fuel costs)	4 68 LVL/MWh
JSC "Aurora"	15 12 LVL/Gcal (excl VAT)
"TOMO", Ltd	18 45 LVL/Gcal (with pre-tax)

**Tariffs approved by the Energy Regulatory Council
as of 01.01.1999**

Liquefied gas

JSC "Latvijas gāze" and liquefied gas supply utilities

Maximum tariffs of liquefied gas

for sale in 50 l and 27 l gas cylinders	269 LVL/t
in tankers from gas filling stations	242 LVL/t
for motor transport	250 LVL/t
1 l, 2 l and 5 l gas cylinders	between 269 LVL/t and 532 LVL/t

JSC "Latvijas gāze"

maximum tariff from gas filling stations	
1 l, 2 l and 5 l gas cylinders (without gas cylinder repairs and servicing)	190 LVL/t

**Tariffs approved by the Energy Regulatory Council
as of 01.01.1999**

Electricity

State JSC "Latvenergo" under privatisation

average electricity sales tariff	0 03028 LVL/kWh
to residents (excl VAT)	0 033051 LVL/kWh
to residents (incl VAT)	0 039 LVL/kWh

Average costs structure of public services for one family (2.6 people) in Riga, in apartments with all amenities (incl VAT) during the heating season 1998 – 1999

	Type of service	Unit	Costs per unit	Costs per family	incl subscription fee
1	Heating (total area 45 m ²)	LVL/ m ²	0.51	22.95	
2	Heating system maintenance	LVL/person	0.5	1.3	1.3
3	Telephone (digital) starting with 01 04 99	LVL		12.38	3.54
4	Hot water (without meter)	LVL/ person	4.30	11.18	
5	Cold water and sewage (without meter)	LVL/ person	2.72	7.07	
6	Electricity (120 kWh)	kWh	0.039	4.68	
7	Gas usage (with meter) + subscription fee	LVL		1.62	1.12
8	Waste disposal	LVL/ person	0.30	0.78	

Average costs structure of public services for one family (2.6 people) in Riga in apartments with all amenities (incl VAT) during the heating season 1998 – 1999

Natural gas	- 2.6%
Waste disposal	- 1.3%
Heating 45 m²	- 37.0%
Maintenance of heating system	- 2.1%
Telephone	- 20.0%
Hot water	- 18.0%
Water, sewage	- 11.4%
Electricity	- 7.6%

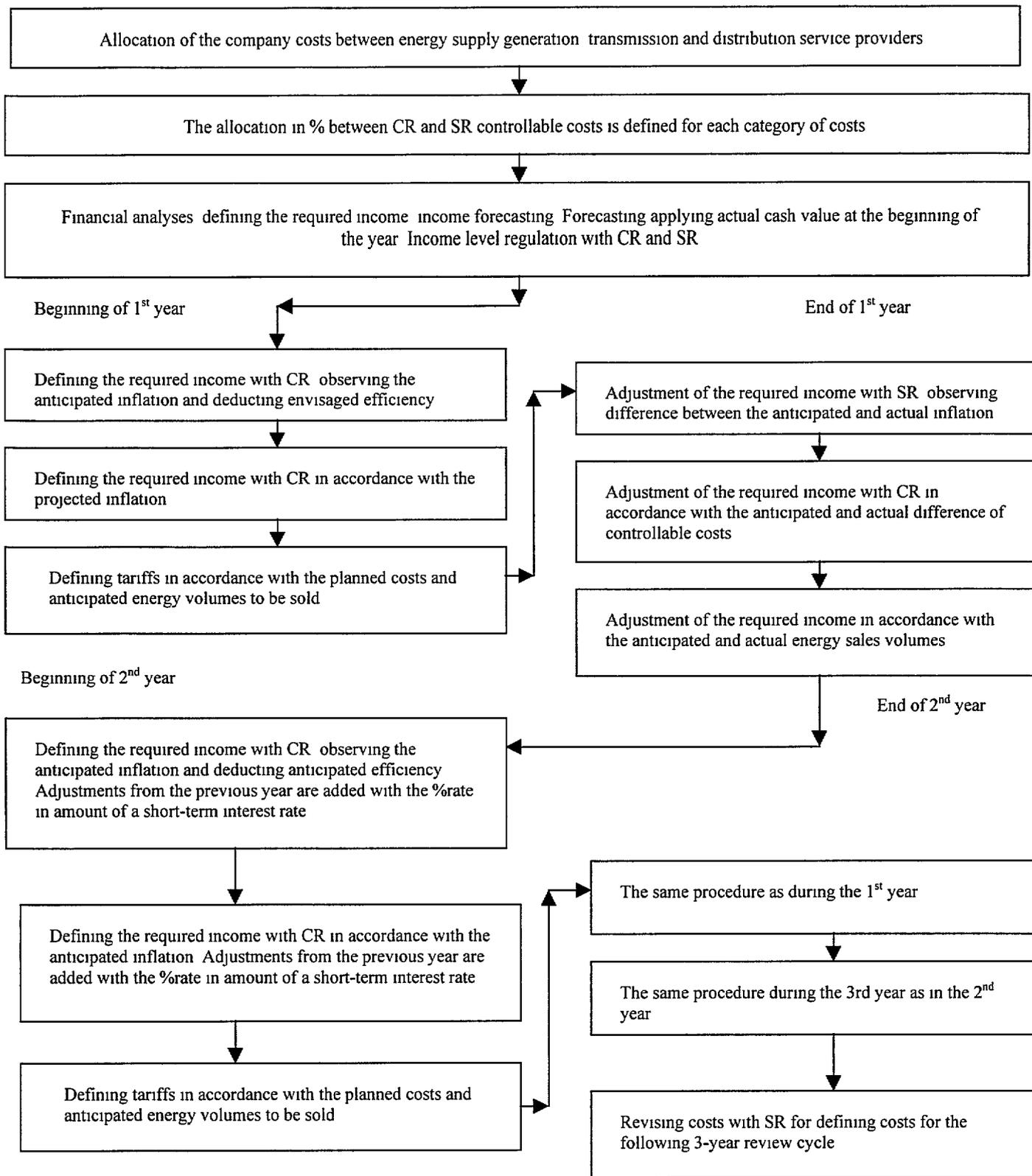


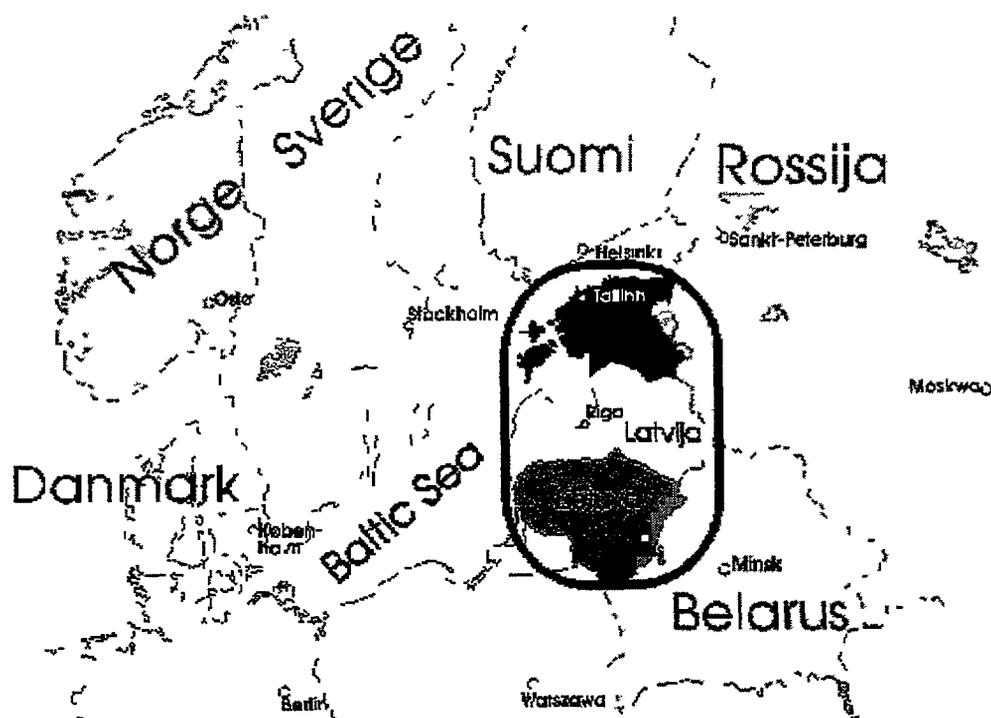
Figure 1 Integrated pricing method scheme The integrated method applies regulation which is stimulating more efficient company operation (SR) and cost recovering regulation (CR)

INTERNATIONAL CONFERENCE

GRADUAL DEVELOPMENT OPTIONS OF THE BALTIC ELECTRICITY MARKET

7 – 9 December 1998
Hotel “Konventa Sēta”, Rīga
Latvia

Estonia – Latvia - Lithuania



**Comparison among three scenarios
for Baltic electricity market
development**

Dr. Charles F. Zimmermann
Bechtel Consulting

**Gradual Development Options
of the Baltic Electricity Market**

December 7- 9, 1998

Riga, Latvia

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Purpose of this presentation

- To discuss the different ways in which the electricity market in Estonia, Latvia, and Lithuania might be restructured
- To present 3 alternatives for discussion during this conference
- To explain why decisions on electricity market structure are needed

Why do we need to make a decision about electricity market structure?

- To obtain long-term financing for power systems or generating companies
- To support privatization of power stations or low voltage networks
- To prepare Estonia, Latvia, and Lithuania for EU admission
- To rely on competition, instead of regulation, to minimize generation costs

Why do we need to change the electricity market structure?

- The EU wants competition in a “single market” where Qualified Customers and suppliers buy from generating companies
- Many people think competition is more effective than regulation of generating costs
- Strategic investors want an opportunity to build (or rebuild) IPPs
- Strategic investors do not believe that the present market structure will survive

Under what conditions is strong competition possible?

- Estonia-Finland DC connection with enough MW to influence Baltic market prices
- A large gas-fired combined cycle IPP
- Lithuania-Poland DC connection with enough MW to influence Baltic market prices
- Reconstruction of several units of Lithuania 1800 MW as combined cycle units
- Weakening of RAO EES Rossii; strengthening of individual Russian generating companies

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How many producers and buyers already exist in the Baltics?

- Estonian + Baltic oil shale 2648 MW
- Ignalina 2600 MW
- Lietuvos Enerģia: PS + thermal 2370 MW
- Latvia hydro 1491 MW
- Latvia CHPs 520 MW
- Vilnius 3 CHP 348 MW
- Eesti E: Iru 190 MW
- others 500 MW +
- Eesti Enerģia - "single buyer"
- Latvenerģo - "single buyer"
- Lietuvos Enerģia - "single buyer"
- Narva + Western nets
- RAO EES Rossii - seller with zero transparency
- Belenerģo - a totally bankrupt buyer

oh

Which restructuring proposals must be taken seriously?

- Estonia: Negotiations with NRG for 49% privatization of oil shale power stations
- Estonia: 200 MW undersea link to Finland
- Latvia: Formation of daughter companies within Latvenergo
- Lithuania: Reduction in export to Belarus; search for new markets for Ignalina
- all three countries: Qualified Customers

What are some of the other changes that could occur?

- Lietuvos Enerģia could be functionally unbundled
- The Power Bridge might be built
- The East-West High Voltage Transmission System might be built
- Yantarenergo might become a buyer
- Yantarenergo might build a new power station

Is a spot market necessary?

- In international electricity trade, a spot market is needed when:
 - Both buyer and seller benefit from the sale of peak energy or non-firm energy
 - Buyer and seller want to use hourly prices
 - Buyer and seller cannot reach agreement on a pricing formula based on "production costs"
 - It is possible to have competition in the market
- Firm energy is sold under bilateral contracts.

The problem of liquidity

- In a stock market or a power exchange with a small number of buyers and sellers, there will be times when there are not enough bids to provide an assurance that the price is competitive
- A power exchange might establish rules that limit market trading to the hours when there is enough liquidity
- A connection to Nord Pool (via Finland) is a possible solution, but it is expensive

Consider 3 alternatives

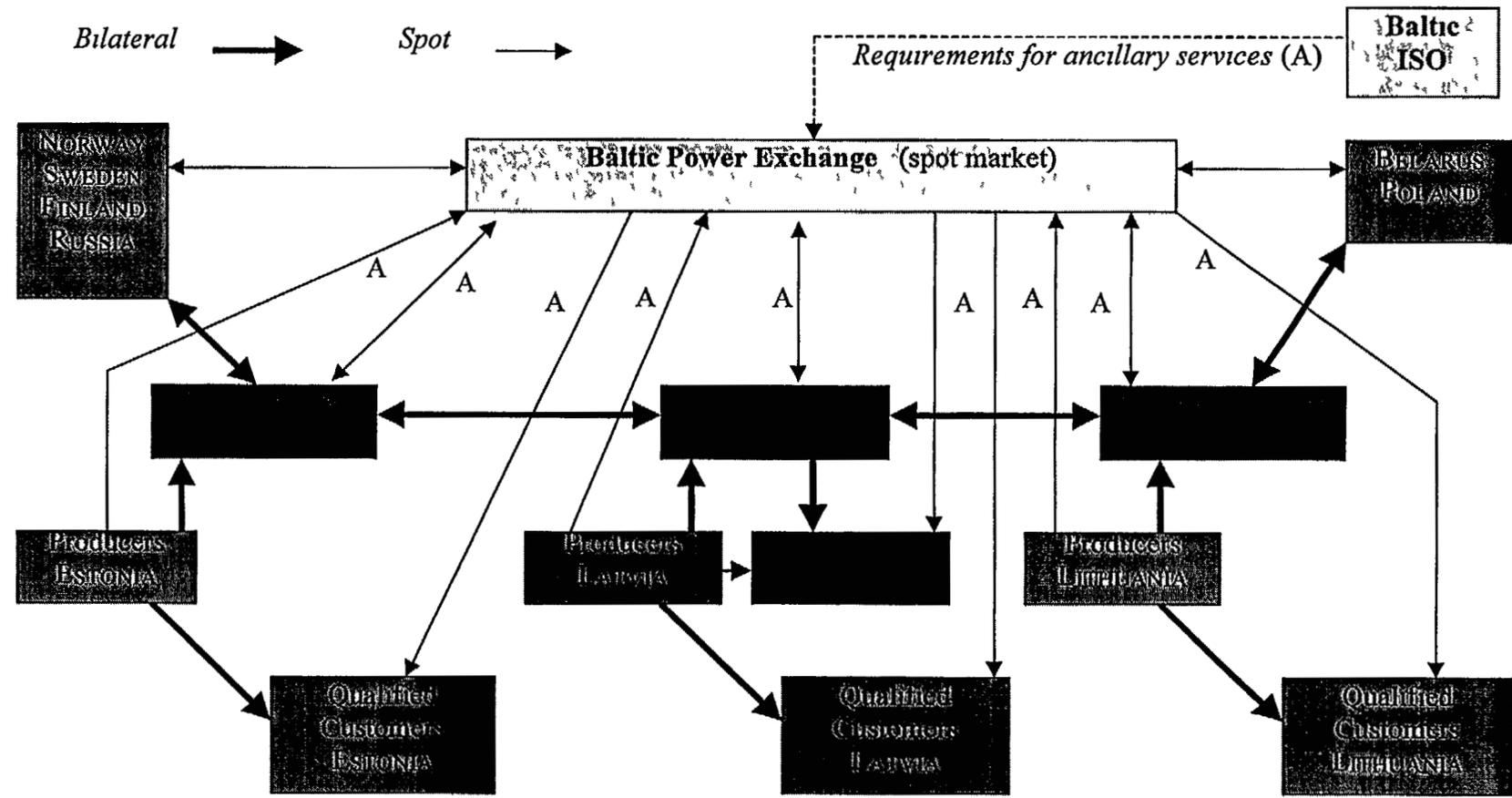
- **Baltic spot market + bilateral contracts among power systems**
- **Baltic spot market + Third Party Access**
- **No spot market: bilateral contracts among power systems**

Baltic spot market with bilateral contracts among power systems

- Expansion of Nord Pool: the Baltic countries would be next, after Denmark
- Gradual transition, in bilateral contracting
- A power exchange in which it will probably be difficult to maintain liquidity
- Creation of Qualified Customers
- Formation of a high voltage network company as "single buyer" in Latvia

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Baltic spot market with bilateral contracts among power systems



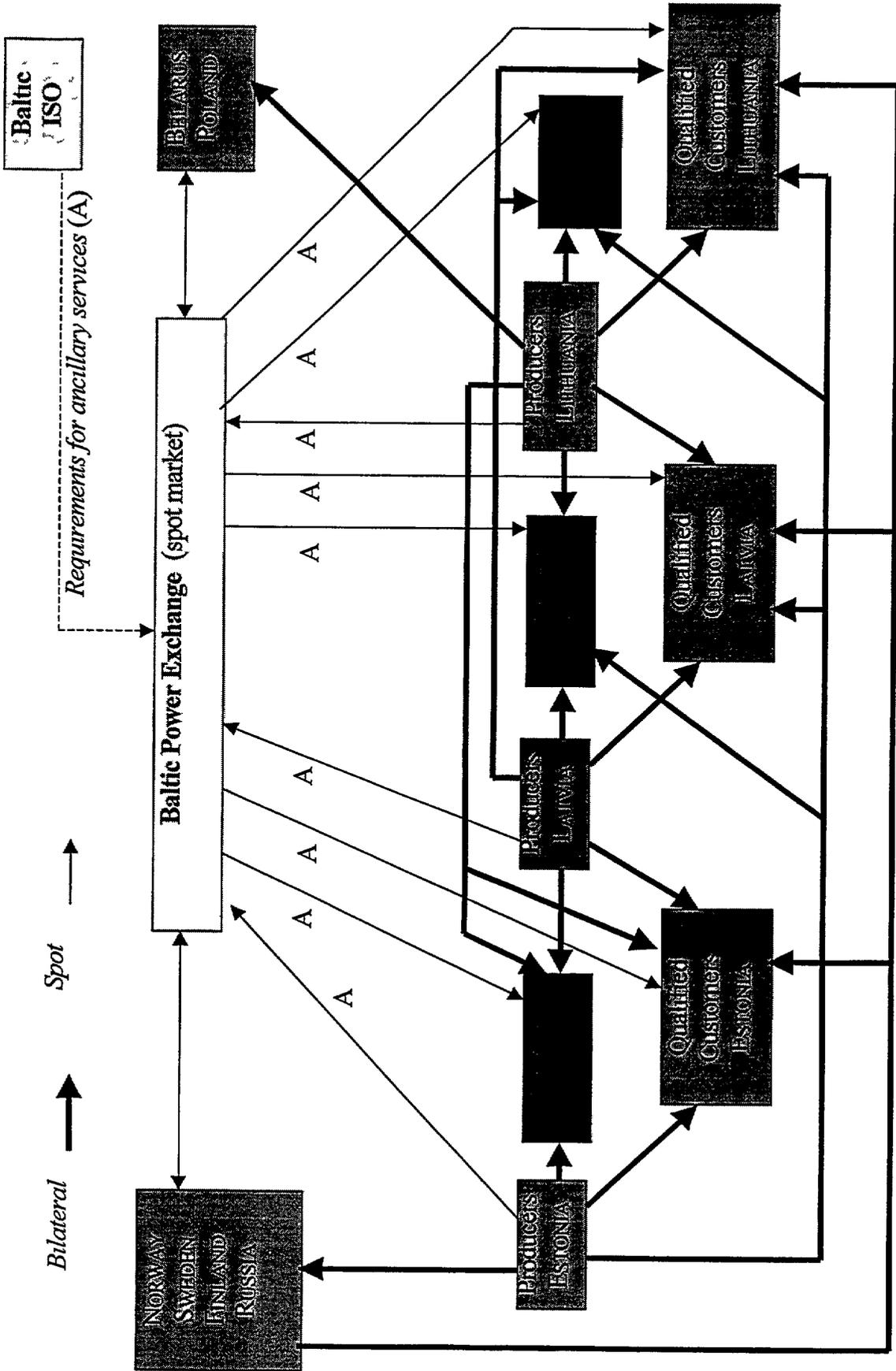
Spot plus ancillary services \xrightarrow{A}

* After the HV Network is formed as a company, it will take responsibility for buying and selling capacity and energy in the electricity market

Baltic spot market and third party access

- Full liberalization of the electricity market, consistent with the EU Electricity Directive
- Expansion of Nord Pool to the Baltics
- A power exchange somewhat like a stock exchange - a self-regulating organization with tough rules designed to promote market liquidity and transparency

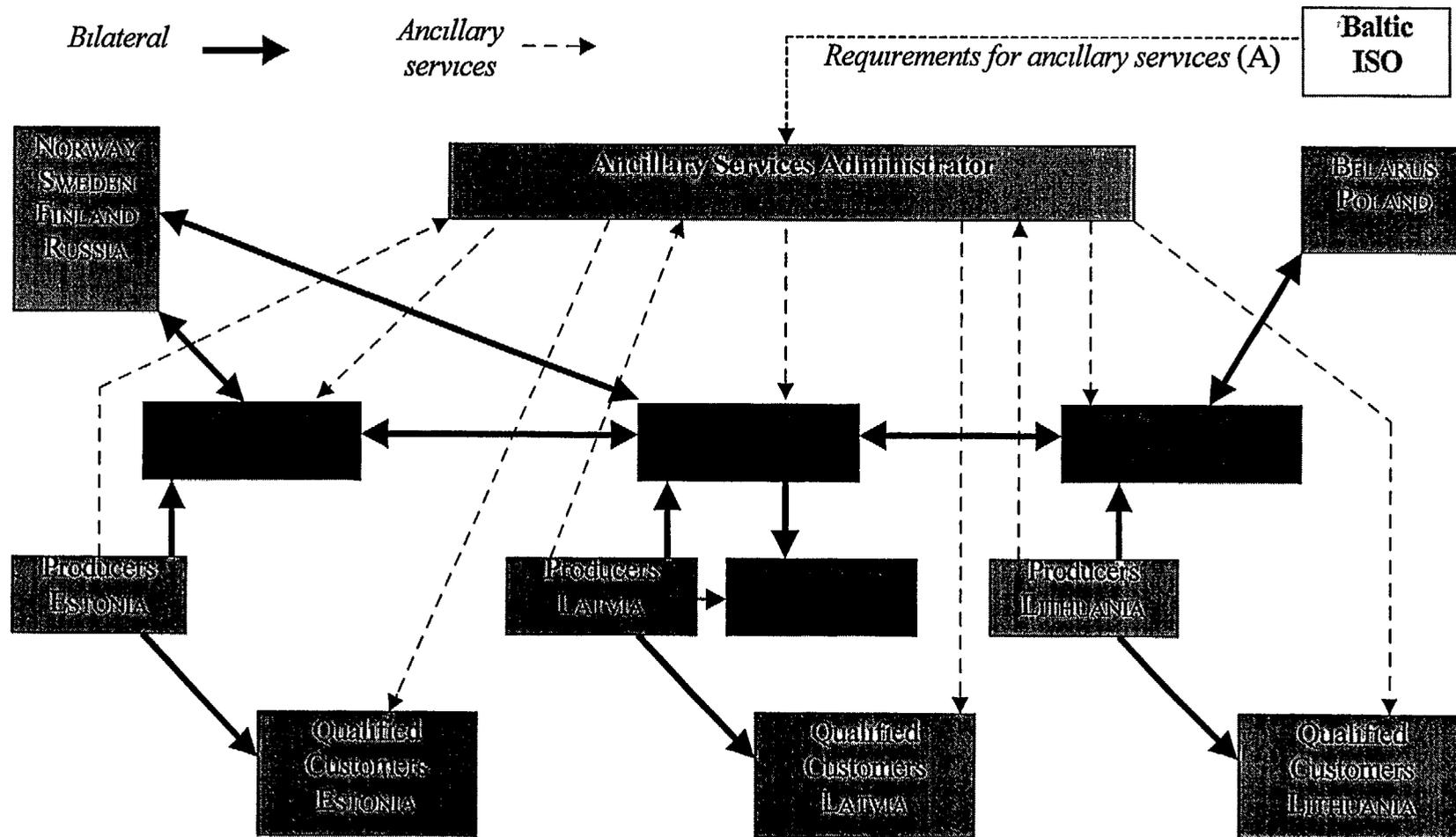
Baltic spot market and third party access



Bilateral contracts among power systems

- Greater transparency of the market for ancillary services
- Otherwise, little change in market structure
- Creation of Qualified Customers
- Formation of a high voltage network company as “single buyer” in Latvia
- Delay in other market reforms needed to fulfill the EU Electricity Directive

Bilateral contracts among power systems

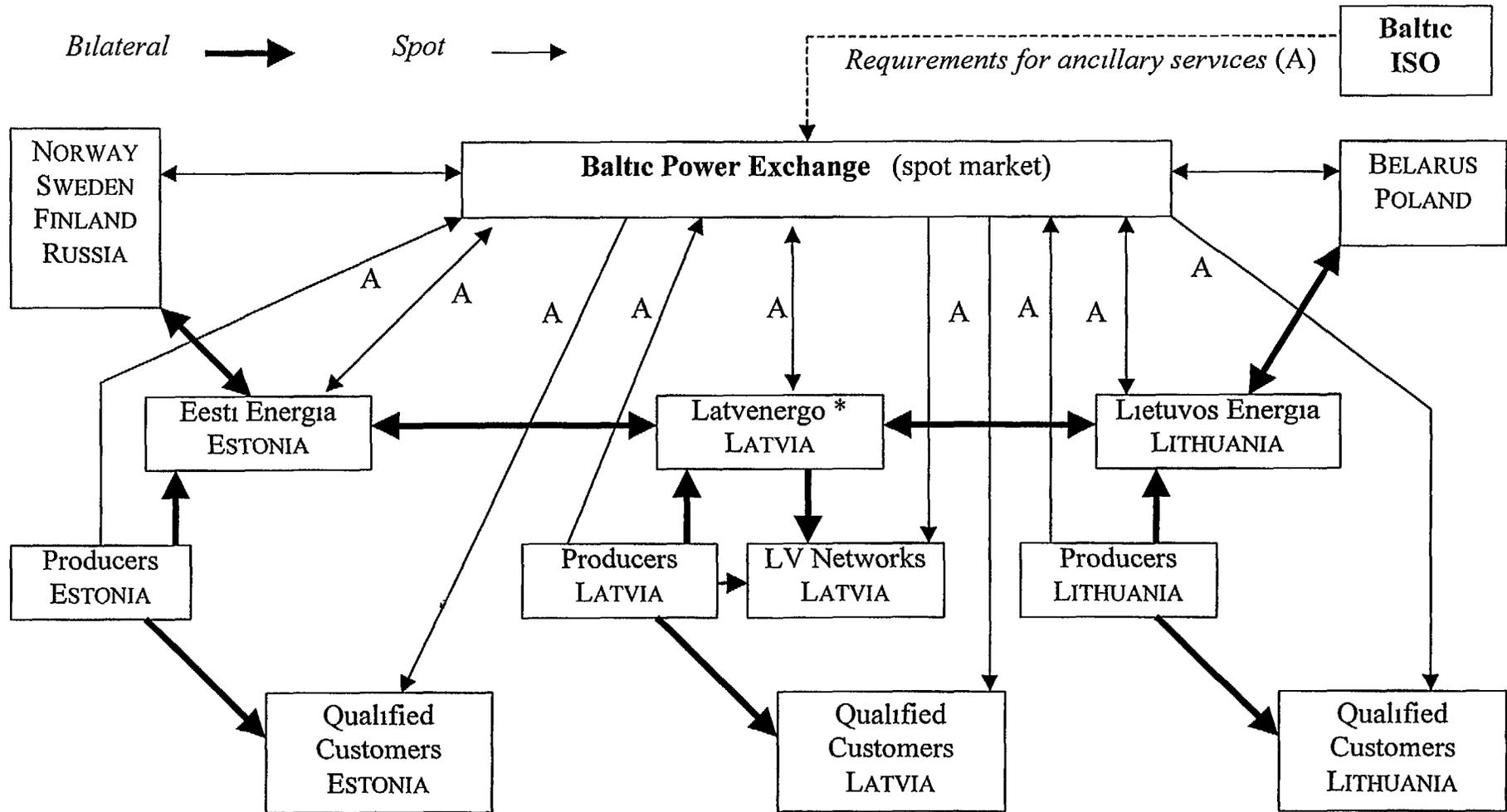


* After the HV Network is formed as a company, it will take responsibility for buying and selling capacity and energy in the electricity market

Recommendations

- **Proceed with the Estonia-Finland connection as soon as possible, and consider expansion to 1000 MW by involving Latvia and Lithuania**
- **Start up a Baltic Spot Market in 1999**
- **Begin with Option A**
- **Retain the option of moving to Option B (third party access) after a few years**

Option A
BALTIC SPOT MARKET WITH BILATERAL CONTRACTS AMONG POWER SYSTEMS



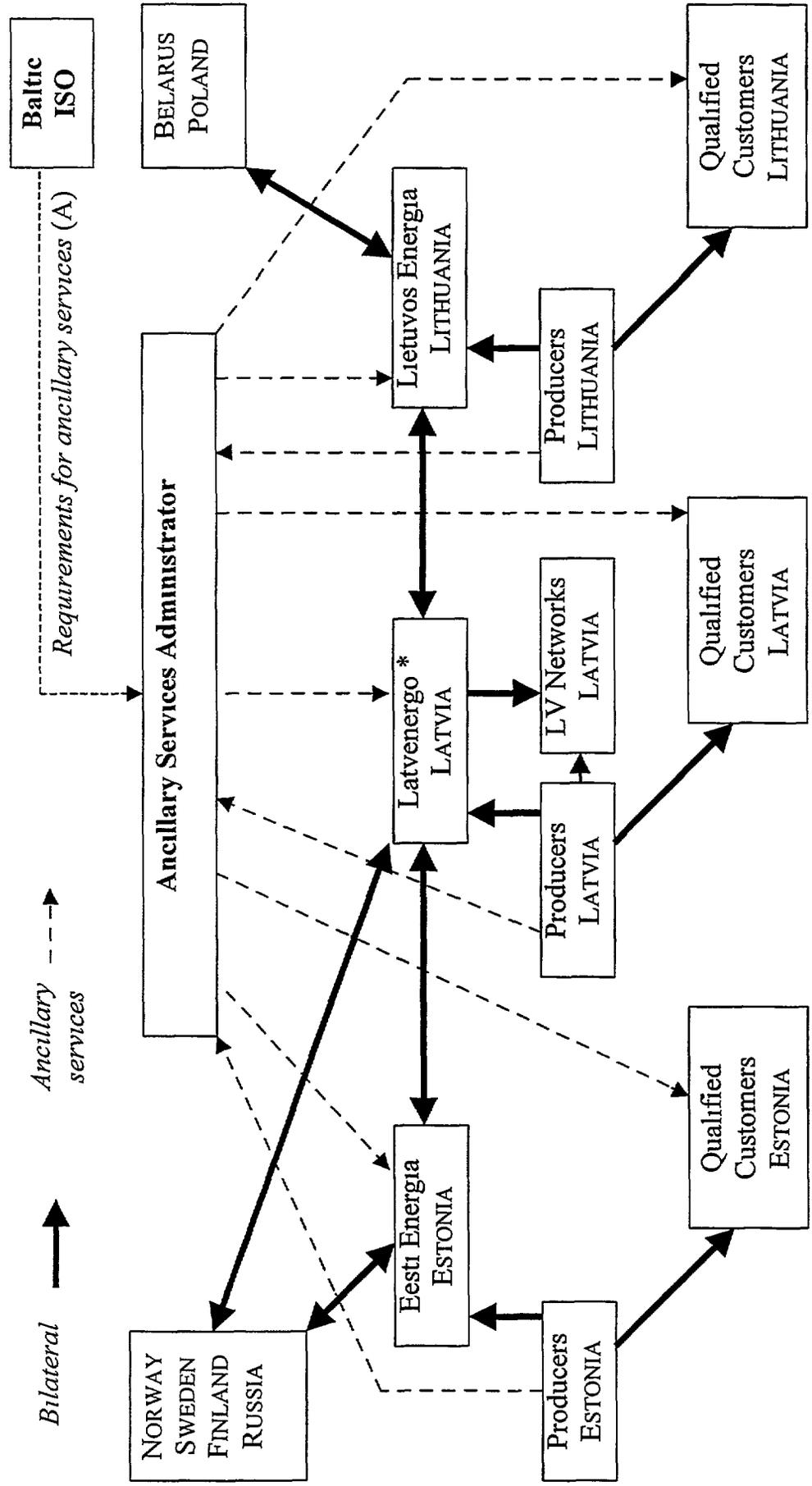
Spot plus ancillary services \xrightarrow{A}

* After the HV Network is formed as a company, it will take responsibility for buying and selling capacity and energy in the electricity market

<i>Option A</i>	<i>Baltic Spot Market with Bilateral Contracts among Power Systems</i>
Objective	Partial liberalization of the electricity market, through the creation of a spot market with many buyers and sellers, and gradual, step-by-step restructuring of the market for bilateral agreements. When greater oil- and gas-fired generation is needed, the spot market is used to balance supply and demand on an hourly basis.
Description	<p>This option involves the establishment of a Baltic Power Exchange (BPE) and the transformation of DC Baltija into an Independent System Operator (ISO). The BPE will operate a spot market for electricity based on bids received from generators, networks, qualified customers, and nearby countries (Norway, Sweden, Finland, Russia, Belarus, Poland). Spot prices are determined for each hour, as in Nord Pool, and bids are received one day ahead of actual operation.</p> <p>Base load requirements may be covered by the bilateral market. Only three Baltic entities are allowed to participate in international bilateral contracts: Eesti Energia, Latvenergo (or the high voltage network daughter company of Latvenergo), and Lietuvos Energia. These entities maintain a strong control over the bilateral market, and therefore the bilateral market is not fully liberalized and is not in compliance with EU Directive 96/92/EC. The Single Buyer option and TPA are both possible.</p> <p>The networks provide for the transit of electricity when it is necessary to implement a spot transaction or bilateral transaction between buyer and seller. The ISO has authority to place restrictions on spot and bilateral transactions that threaten system stability. The BPE has authority to create two or more spot price regions on the basis of transmission constraints.</p> <p>Ancillary services (voltage and frequency regulation, reactive power compensation, and operating reserves) will be provided on the basis of instructions given by the ISO. The cost of ancillary services will be recovered through invoices prepared by the BPE and sent to networks and qualified customers in Estonia, Latvia, and Lithuania. Payments to Baltic producers will be made by the BPE.</p> <p>Issues for discussion: It is necessary to decide how the BPE will implement spot transactions when there are very few buyers and sellers in the spot market. It may be possible for the BPE to set the spot price as a fixed percentage of the Nord Pool spot price, under these conditions. It is also necessary to decide whether brokers and other intermediaries should be allowed to participate in the spot market. To ensure system stability it may be necessary to place limitations on Russia's share of the bilateral market.</p>
Preconditions	The BPE and ISO have to be established on a legal basis. Share holders of the BPE must be identified. The BPE requires an investment in computer systems and communications equipment. Bilateral agreements must be reviewed and possibly modified to reflect the role of spot market transactions.

<i>Option B</i>	<i>Baltic Spot Market and Third Party Access</i>
Objective	Full liberalization of the electricity market, through the creation of a spot market with many buyers and sellers and a bilateral market among all producers, networks, and qualified consumers in the Baltic countries. When greater oil- and gas-fired generation is needed, the spot market is used to balance supply and demand on an hourly basis.
Description	<p>This is similar to option A, except with regard to bilateral agreements.</p> <p>As in Option A, the BPE operate a spot market for electricity based on bids received from generators, networks, qualified customers, and nearby countries (Norway, Sweden, Finland, Russia, Belarus, Poland). The spot market may be restricted to peak hours and to specific times established by the BPE – for example, off-peak hours when bilateral contracts cannot meet market demand in MW.</p> <p>To ensure a competitive and effective spot market, the BPE has authority to impose restrictions on the percentage of supply that can be obtained by networks or qualified customers through the bilateral market. The three Baltic countries form a single bilateral market and the possibility of integration with the electricity market of the EU can be created through DC interconnections with Finland and Poland. Access to the bilateral market is not affected by borders among EU member countries, but the role of Russia and Belarus in the bilateral market may be restricted to ensure system stability. When transmission and distribution operations are functionally separated, the electricity market will be in compliance with EU Directive 96/92/EC.</p> <p>As in Option A, the networks provide for the transit of electricity when it is necessary to implement a transaction between buyer and seller. The ISO has authority to place restrictions on spot and bilateral transactions that threaten system stability. The BPE has authority to create two or more spot price regions on the basis of transmission constraints.</p> <p>As in Option A, ancillary services (voltage and frequency regulation, reactive power compensation, and operating reserves) will be provided on the basis of instructions given by the ISO. The cost of ancillary services will be recovered through invoices prepared by the BPE and sent to networks and qualified customers in Estonia, Latvia and Lithuania. Payments to Baltic producers will be made by the BPE.</p>
Issues for discussion	The BPE must give buyers and sellers a clear set of guidelines concerning restrictions on spot and bilateral transactions. If it is necessary to limit spot market operation to specific time periods such as peak periods, the BPE should notify all participants well in advance. It will be necessary to decide whether brokers, and other intermediaries should be allowed to participate in the spot market.
Preconditions	Same as Option A, except that bilateral agreements will require major modifications in accordance with guidelines set by the BPE.

Option C
BILATERAL CONTRACTS AMONG POWER SYSTEMS



* After the HV Network is formed as a company, it will take responsibility for buying and selling capacity and energy in the electricity market

Option C Bilateral Contracts among Power Systems

Objectives To ensure the stability of the Baltic power system by establishing a strong ISO and an Ancillary Services Administrator to handle pricing, billing, and other financial aspects of services provided by the ISO, without the creation of a spot market

Description Instead of a BPE, an Ancillary Services Administrator (ASA) will be established. Its basic function will be the negotiation and calculation of prices for ancillary services such as voltage and frequency regulation, reactive power compensation, and operating reserves. All technical instructions are provided by the ISO.

Option C may be regarded as Option A without a spot market. The likely consequence is a set of bilateral contracts with complex pricing clauses to provide capacity and energy during peak periods, and ancillary services that become costly when oil- and gas-fired generation are needed to meet customer demand in MW and maintain system stability.

Option C resembles the current situation, but it includes modifications needed to enable the governments of Estonia and Latvia to implement their existing privatization plans. The establishment of the ASA and ISO provides for further development of the Baltic power market, but it does not allow direct competition among producers.

Import and export agreements will be performed by the three power systems through bilateral contracts. A Baltic power producer may conclude bilateral contracts only with its domestic power system (or HV network) and its domestic qualified customers.

Issues for discussion Because this option does not include market liberalization, it can only be viewed as a transitional regime. It may be necessary to set a date when the entire Baltic market will be opened to comply with EU Directive 96/92/EC on a single electricity market. Option C may be implemented relatively quickly, but it will not resolve questions regarding TPA and European integration. The allocation of responsibilities among the national System Operators and the Baltic ISO must be clearly defined.

Preconditions Ideally, all generation entities should be able to negotiate bilateral contracts and should be functionally separated from transmission and distribution networks. Functional independence of generating stations owned by *Lietuvos Energija* would be needed, and the Ignalina nuclear power plant would act as an independent power producer. The BPE and ISO have to be legally established and put into operation. Through bilateral contracts the HV network in Latvia would establish its role as a buyer and seller.

OWNERSHIP OF THE ELECTRIC POWER SECTOR IN THE BALTIC COUNTRIES

Summary of the situation in early December 1998

