

# ‘One bill for electricity’ investigation project



Finnish Energy Industries

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## 0. Summary and introduction

Nordic or even European retail market for electricity is discussed. One of the major issues to be dealt with is how to organise the customer interface, especially billing. In most of the EU countries both sales of energy and grid services (or distribution) are invoiced in one bill, except in the Nordic countries where two separate bills are sent when a customer has switched supplier. The electricity billing solutions are typically results of historical developments and it has not been analyzed, what kind of a system would best serve the customers, suppliers and distribution system operators (DSO).

This report intends to analyze what should be taken to account if a change from two bills to one would take place. The report does not take position on whether we should choose one or two bills for electricity. But hopefully it could facilitate discussion on the choice.

Several issues should be taken into consideration or further examined before any changes in billing:

- changes should improve the operation of the market
- direct operative costs or total costs shall not rise
- for a customer, the system should be simple, clear and easy
- for a non-billing party joint billing should mean savings in the billing costs
- for a billing party it should mean easy implementation
- a reasonable management and consideration of credit loss risks
- operating processes, e.g. the method of transferring information on consumption, prices and other billing data (messages, hub, or centralised database, etc.)

It is recommended that, in order to achieve operative savings, joint billing should not be optional but default – or stay with two bills. Data exchange should be standardised well enough in order to be able to create joint bills in an environment of at least dozens of both DSOs and suppliers, or even hundreds of them (a Nordic market).

A major problem is how to arrange parties' rights and obligations in case of one bill. The report suggests, in case a joint bill is introduced, it should be stipulated in legislation. It is not realistic to expect dozens or hundreds of parties to conclude contracts on joint billing.

In any further work the effects of technological or behavioural changes, like smart grids or electronic invoicing, should be taken to account.

The report was discussed in the joint meeting of the Committee for Electric Networks and the Committee for Electricity Supply and Trading on 19 November 2010, and since then it circulated for comments within the aforesaid committees, as well as the Working Group Retail Electricity Markets and the Working Group Grid Customer Relationship Management until 14 January 2011. The received comments have been taken into account in the report.

18 February 2011

## Contents of the report

0.	Summary and introduction .....	1
1.	Background and tasks of the project .....	2
2.	Future development of electricity customer relationships.....	3
3.	Comparison with the telecommunications industry .....	4
4.	Nordic development projects.....	5
5.	Objective and boundary conditions of joint billing.....	6
6.	The process and data transfer model required by one electricity bill.....	8
7.	Joint billing and the current legislation and other regulations in Finland.....	12
8.	Issues of the division of responsibility .....	13
9.	Joint billing based on a contract .....	17
10.	Joint billing based on legislation .....	18
11.	Further action – recommendations of the steering group .....	19

### 1. Background and tasks of the project

In Finland, a customer who has switched his electricity vendor usually receives a separate bill for electric energy and electricity distribution. On the other hand, the customer of a vendor with a delivery obligation only receives one itemised bill, which includes distribution and energy. This kind of a procedure has also been criticised, as in some customers' opinion a situation with two bills is a disadvantage resulting from the vendor switch. For some customers, two bills may pose a constraint on operating in the electricity market. The question whether the current procedure may be against the Electricity Market Act or competitive legislation has not been raised to be clarified by the authorities or courts of law.

Some vendors have offered their customers so-called central billing where the vendor's bill also includes distribution. This arrangement of individual bodies has not been successful because its automation has not been possible, and some vendors offering central billing have already abandoned or are in the process of abandoning the system. For a network company, the model of one or two bills creates a negative incentive: if the network company operates well as a result of a well-functioning market and several customers are purchasing their energy from elsewhere rather than from the vendor with a delivery obligation, the costs of the network will increase.

The situation in the Nordic countries is basically the same as in Finland: vendor switching results in two bills. Elsewhere in Europe, one bill is the main rule: the vendor also includes distribution on its customer bill and pays the share of distribution to the network company. The comprehensive European model works in cases of a limited number of operators and product structure where it is possible to agree, e.g. on data transfer methods between individual operators. In many EU countries, the implementation of one bill is facilitated by the fact that itemisation of sales and distribution on the bill is still not required. For example, in the well-functioning British electricity market, there are about ten network companies and about half a dozen major vendors, as well as a few smaller ones. In the Nordic countries, the number of operators in the network and sales is high and, e.g. tailoring of data transfer is not sensible.

There has been preliminary consideration of a European model for an electricity retail market, but no clear model can be expected any time soon. It is not clear in advance whether the model would be based on one or two bills. It is also uncertain whether a mandatory European model will be formed, and if so, when.

The most versatile cross-border integration project is under way in the Nordic countries: the implementation plan drawn up for the Nordic energy ministers aims for a joint retail market in 2015. Organisation of the customer interface and bill is an extensively interesting issue. There is also a profound integration project between the Netherlands and Belgium. There are also other projects between Germany and Austria, and Spain and Portugal.

18 February 2011

During the current year, there has been extensive discussion within the industry in Finland and in other Nordic countries on one or two bills and the organisation of the customer interface in other respects. No unequivocal conclusions have been drawn.

The Committee for Electric Networks and the Committee for Electricity Supply and Trading of Finnish Energy Industries have deliberated on the organisation of the customer interface for a few years, e.g. in the form of international comparison and process examination (LUT's English-language reports, <http://www.energia.fi/fi/sahko/sahkokauppa/julkaisut>). In winter 2009-2010, billing was specified as a process with room for improvement in terms of customers and operators. The Committee for Electricity Supply and the Committee for Electricity Supply and Trading established a joint steering group to investigate the possibility of joint billing. The group was named 'One bill for electricity'.

As there has been an extensive debate on the matter during the project, the steering group defined consideration of a **way of implementing meaningful joint billing for possible future need as its task** – such as for a need arising in the preparation of a Nordic electricity retail market. However, the group did **not** focus on discussing **whether joint billing should be implemented or not**.

Likewise, the steering group decided against preparing a model for joint billing that can be made rapidly available, which would have meant smallest possible changes to the initial situation. There would be no preconditions for a decision on a joint operating model as the views of the industry are divergent.

The fact that different speakers have perceived the issue of joint billing or the 'two bills, one bill' question in different ways has already created a great problem. Hopefully, this report can facilitate the debate on the subject while determining one method of implementing one bill for electricity.

### **The steering group of the project has included**

Appointed by the Working Group Retail Electricity Markets (electricity trade):

- Jukka Toivonen, Fortum Markets Oy, Chairman
- Olli Arola, Vaasan Sähkö Oy, Vice Chairman
- Jussi Mikkola, Helsingin Energia
- Vesa Mäkilä, Turku Energia Oy (as of 1 December 2010 Satapirkan Sähkö Oy)

Appointed by the Working Group Grid Customer Relationship Management (electricity network):

- Riitta Vaissalo, Fortum Customer Services IT
- Ville Sihvola, Vattenfall Verkko Oy
- Satu Willgren, Helsingin Energia (until the meeting on 18 June 2010)

From the offices of Finnish Energy Industries:

- Elina Lehtomäki (until the meeting on 21 September 2010, after which Ina Lehto)
- Riina Heinimäki
- Elina Mäenpää
- Markus Piispanen (since summer 2010)
- Pekka Salomaa, Secretary

According to the project plan, the objective is to establish the preconditions for implementing cost-effective electricity billing that serves the customer well and is managed by the vendor, as well as the changes that would have to be made to the practices, contractual terms, etc. of the industry, and to legislation, if necessary.

## **2. Future development of electricity customer relationships**

It has often been referred to in discussions concerning the organisation of the customer interface that it may not be possible to foresee the future development of the tasks of the

18 February 2011

vendor and the network company. Due to remote metering, remote controls, distributed production, customers' electricity stores (such as the batteries of electric vehicles), the tasks may be reorganised in a new way. It is possible that the network's status in the customer relationship will grow, and in view of this, the network companies have sometimes taken a reserved attitude towards dispensing with customer billing. On the other hand, it has been asked whether sending a distribution bill from the network to the customer truly helps, for example, to solve the problems related to network connection of distributed production. At least the concept of 'one bill' must not be implemented so that the network company disappears completely into the background.

It has also been pointed out that as e-billing becomes more and more common, the billing costs and the effort of bill processing will diminish for both those sending out a high number of bills and for the recipients of the bills. Therefore, joint billing would not be needed. On the other hand, it has been commented that the progress of electrification of billing has been considerably slower than predicted, and the processing of e-bills is not completely effortless, either. For a customer not understanding the basic scenario of the electricity market, two separate bills for the 'same product' is still confusing, whether the bill is on paper or in electronic format. The billing procedure is complicated further by the so-called SEPA reform, as a result of which it will be necessary to relinquish the current Finnish direct debit system.

However, the above-mentioned matters are related to the question whether to adopt joint billing or not, and therefore, according to the tasks of the steering group, no efforts will be made to solve them in the end report. However, the steering group wishes to point out that these and many other questions will have to be answered as and when, for example, a retail market model and, consequently, the implementation of billing, will be decided on in the preparation of the Nordic retail market.

### **3. Comparison with the telecommunications industry**

The steering group learned about the joint billing system and related experiences in the telecommunications industry in its meeting of 18 June with the help of Esko Pääkkönen of Tieto Oyj. According to information obtained from telecommunications companies and the industry association, the industry does not have a single harmonised standard agreement between the operators in the field. Each operator draws up the contracts independently, and they are confidential. It can be assumed that the contracts resemble one another to a great extent, but they are not totally identical.

According to information we have obtained, the principle of one bill in the telecommunications industry is not completely watertight. At least some long-distance call operators have had to bill their customers directly for their services, when no agreement with the customers' domestic operators has been achieved.

Broadly speaking, implementation of joint billing in the telecommunications industry has, nevertheless, been a practical necessity. For example, roaming would not be successful without it, and therefore a mobile phone would not be of any use during overseas trips. There is no corresponding necessity in the electricity industry. Reaching an agreement is also facilitated by the fact that the fees are often reciprocal and are mainly balanced out. This is not the case in the electricity industry.

In a comparison carried out on the basis of experiences in the telecommunications industry, several matters were observed, and efforts were made to apply them to the different situation in the electricity industry. Some of the conclusions are presented in the following.

1. Joint billing must be based on fully electronic data transfer. A centralised model, such as EMIX in Sweden, could work in data transfer.
2. We need a strong standardisation organisation, which should really be as universal as possible, but the need could be confined to the Nordic countries, at least to begin with.

18 February 2011

The standardisation work must be started in good time before implementation. We must solve the issue of whether the standardisation body would be administered by the operators in the industry, service providers, authorities, or jointly by all.

3. Defining clear processes is the first task of the standardisation work. Clarity includes, e.g. the fact that the responsibility for collection is not transferred from one party to another, resulting in the customer's confusion (excl. transfer to a collection agency, which is customary).
4. Joint billing requires generally applied standard agreements that rest on legislation or a legislative solution where no contracts between operators are needed in order to implement joint billing. The difference to the telecommunications industry is that the mutual interest to implement joint billing is not quite as high in the electricity sector, and therefore a solution that is strongly based on legislation is probably the only one possible. The result is the same if the requirement is for joint billing that is without exception. In other words, if there is no desire for a network company to maintain preparedness to bill some of its customers directly, the implementation of joint billing cannot be something that the vendor either offers or does not offer, or something that the vendor and the network company can - or cannot - agree on.
5. It must be resolved whether a clearing service may be needed. A possible solution may depend on the overall solution for data transfer in the electricity market. For example, a Nordic balance management service unit could act as a clearing house. The need for clearing in comparison with the telecommunications industry is reduced by the fact that there are usually no reverse (receipted) cash flows. The clearing service and the standardisation organisation could be linked with one another in some way.
6. Comparison with the telecommunications industry and its complicated pricing structures proved that profound standardisation of electricity distribution products is probably not necessary in view of joint billing. However, the structures of especially power distribution products may be very different, at least it may be necessary to harmonise the principles of determining their product pricing. However, the calculations required by different structures must be enabled in the standard.

#### 4. Nordic development projects

**The Common Nordic electricity retail market** is a development project under the Nordic Council of Ministers. The meeting of Energy Ministers in autumn 2009 assigned a task for NordREG, the co-operative organisation for Nordic regulatory authorities, to draw up an implementation plan for the project.

In the preparation of the draft plan, organisation of the customer interface was the key topic of debate. Finally, NordREG presented the ministers with a long-term target for the electricity vendor to always manage the billing for consumers' electric energy and electricity distribution on one bill. In the NordREG draft implementation plan, the tasks related to the customer interface were, to a great extent, due to be settled already in winter 2010-2011.

In the meeting of the Nordic energy ministers on 25 October 2010, the plan was dealt with and basically approved so that in their next meeting in October-November the ministers want to come to a decision on the main features of a possible future retail market model. It is quite possible that the customer interface and especially billing will be the main topics of debate in the formulation of the model and decision making.

**Sweden.** Svensk Energi has carried out an investigation entitled 'En kontakt för kunden'. In the report drawn up by a working group with members representing the industry, alternatives such as the current status – one bill and two contacts – focusing the entire customer relationship to a single (vendor) contact were discussed. The group settled on a recommendation on the last-mentioned model of one contact, one contract and one bill. Since

18 February 2011

then, two customer surveys have been carried out. In these, the customers have expressed that they appreciate secure electricity deliveries by the electricity industry and a simple and rapid way of dealing with matters, when necessary, and would rather have just one bill. The project continues as discussions within the industry; the observations were, e.g. discussed in the regional meetings of Svensk Energi in autumn 2010.

In the EMIX project that covers more than 2/3 of the operating volume of the Swedish electricity industry, the key issue is routing of data through a single junction. It is the impression that the system would not, however, solve the problems caused by erroneous procedures by the users or erroneous message contents, although it would otherwise help in message traffic problems.

As part of a long-term Market Design project entity funded by the Swedish electricity industry, a former regulator Håkan Heden carried out an investigation entitled *En faktura till kunden*, which was completed in spring-summer 2009 ([http://www.marketdesign.se/images/uploads/projects/09-71\\_En\\_Faktura.pdf](http://www.marketdesign.se/images/uploads/projects/09-71_En_Faktura.pdf)).

Information about the billing arrangements in **Norway** was requested a few times for this report, but was not received. As far as we understand, joint billing is fairly widespread in Norway, even among customers who have switched vendors. The steering group came to the conclusion that in Norway joint billing, in practice, is formed with special bilateral arrangements, and there is no universal joint billing system that willing vendors could join, either.

In **Denmark**, joint billing is not in general use, at least not for the time being, but as part of the data transfer reform (data hub), they have prepared for the fact that network companies could be obliged by a decision of the ministry to produce the information required by joint billing and to deliver it to the data hub to be established. However, no stipulation on the matter is going to take place soon. It seems that the other preparations required by the data hub will take up all the resources. The report received from Denmark gave the impression that the vendor can demand joint billing data, but joint billing is not the vendor's obligation.

## 5. Objective and boundary conditions of joint billing

The steering group defined the target for the upper level of possible implementation of joint billing, as well as certain boundary conditions. The number of customers who invite tenders their electricity procurement will grow, and therefore, when using the current model, the two-bill situation will become even more common and, consequently, the savings potential of joint billing will also grow.

**The steering group's understanding is that the precondition for adopting joint billing is that it would consequently improve the operation of the market. Moreover, direct operative costs (that will ultimately be paid by the customer) or the total costs that will be charged due to the system investments must not rise.**

**From the customer's point of view**, the system should be simple, clear and easy.

**From the operators' economical point of view**, joint billing should mean savings in the billing costs of the non-billing party, easy implementation for the billing party, and reasonable management and consideration of a credit loss risk for the billing party in the division of responsibility.

**From the point of view of operating processes**, a solution is demanded by e.g. questions on the method of transferring information on consumption, prices and other billing data (messages, hub, centralised database, etc.) and the method of implementing notifications of price changes.

The vendor is under pressure due to competition and the demands for the implementation of billing that is as economical as possible, as well as the need to achieve a good service image

18 February 2011

and to stand out from other vendors. The financial control of network operations also creates similar pressures in network companies. At least the vendor is also motivated to implement joint billing. A significant practical factor is that the distribution product structure is public and it is possible to categorise it to a few product types, which are fairly easy to process in the vendor's joint bill, whereas the vendors are expected to provide product development that is as unprejudiced as possible with hourly metering becoming more common, and the price information is confidential.

The development of smart grids also creates opportunities for diversification of network tariffs. The metering data, on which billing is based on, is in the possession of the network company, and the vendor could provide pricing data to the network company for billing purposes. The product structure of sales is becoming increasingly diversified, and this could turn out to be a problem in the future.

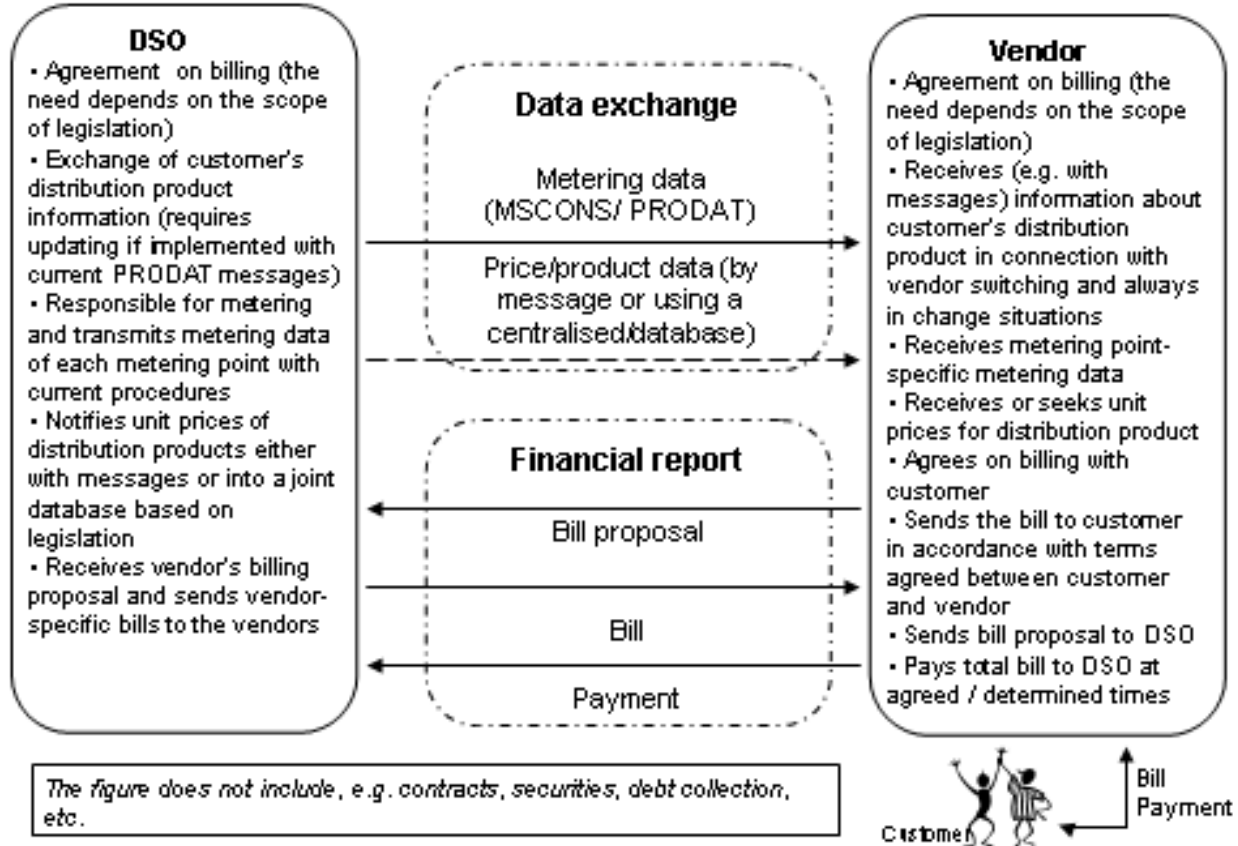
If a joint billing system is adopted, **the vendor** should be charged with compiling it according to the general view of the steering group and the general international model (European default value). It can also be deemed that reasons related to economy, motivation and implementation possibilities with respect to information technology generally speak in favour of this decision.

The precondition for the implementation of the above-mentioned boundary conditions is that **joint billing would be the sole billing method in distribution without exception**. Otherwise, cost savings cannot be expected. The clarity to customers will also improve if joint billing is implemented without exception. Network companies still need to have direct billing, e.g. for connection fees, but a considerably lighter data system than at present will be enough for this purpose. In future, it will be assumed that there would be no two-bill situation when joint billing is operational. Instead, in future, it will be assumed that the situation would not change in the respect that **the customer will still have two contracts**, i.e. a separate electricity network contract with the network company and an electricity sale contract with the electricity vendor (and a possible connection contract with the network company). Therefore, the customer will also basically have two customer relationships: with the vendor and with the network company.

18 February 2011

**6. The process and data transfer model required by one electricity bill**

## Process scheme for the 'one bill' model



In practice, joint billing consists of two separate processes: the transfer of contract, energy volume and price data required in joint billing to the vendor, and the actual financial report. These processes are described on the general level in the above figure. In this proposal, it is assumed that the data exchange process is mainly based on the current and soon-to-be-introduced data exchange procedures on which a decision has already been made and that the financial report is based on the vendor-specific distribution bill sent by the system operator.

The possible agreement on joint billing between operators, which is presented as the first stage in the figure, is independent of the two main processes. Whether the start of joint billing requires contracts between the operators (vendor and system operator) depends on whether joint billing is based purely on legislation or whether additional contracts on certain issues between the operators are needed. This matter has been discussed further in chapters 8 and 9. Certain matters may be left to be agreed in contracts with standard terms between the operators, depending on the scope and elaborateness of legislation. At this stage, the need for a commonly agreed contract with standard terms is still open.

When preparing for a common Nordic retail market, we must try to find a common Nordic database solution and think about data exchange as a whole. It is not worth making decisions that deviate from general development.

**Data exchange in joint billing** must be arranged so that the vendor has all the necessary information in order to draw up a joint bill in accordance with the valid billing orders. The data exchange procedure should be as automated and efficient as possible so that the total cost effectiveness set as a target will be achieved.

18 February 2011

The general model presented above starts from the assumption that the current data exchange methods will essentially be complied with. The metering data of hourly metered sites are sent on a daily basis with respect to each metering point using the hourly time series message (MSCONS), and the metering data for other sites is sent using reading messages (PRODAT Z11 messages) in accordance with the meter reading rhythm of the site in question. Naturally, the selected data exchange method is affected to a great extent by the development of other data exchange taking place in the industry. A key question to answer is whether it would be necessary to move from the current, distributed operating model using messages, to centralised messaging, and further, from messaging to a model based on various database searches. This report does not take a stand on these issues, but unquestionably the matter should be carefully considered.

In addition to metering data, the vendor needs information about the customer's distribution product, its structure, and the unit prices. The current information exchange system does not specify the procedures for transmitting this information.

The information about the customer's distribution product (e.g. a code specifying the distribution product) could be added to the current messages used for the transmission of metering point data (PRODAT). Thus, in connection with every vendor switch, the system operator would give the new vendor the individual distribution product code used by the customer. Correspondingly, and in addition to the above-mentioned, the system operator would notify the customer's current vendor of all changes during delivery (customer changes the distribution product) with a new message defined for this purpose (currently there is no message / agreed reason codes for this very purpose).

To transmit distribution prices, there are basically two alternatives, either maintaining up-to-date product structure descriptions and unit prices in a joint centralised register (database) of the industry or transmitting the above-mentioned data from the system operator to the vendor on an hourly level with daily messages or in another agreed rhythm. In the current situation, there is no method in use in Finland for either of these alternatives that would fit exactly this purpose.

In the procedure using **messages**, the idea is that the system operator calculates the hourly cost of each payment component for each hour and transmits this to the vendor as a time series either on a daily basis or in another agreed rhythm. Thus, the vendor's task is only to add up the hourly costs according to the product structure and that way form the amount to be billed. The time of transmitting the hourly costs is affected, e.g. by whether the price can be determined only, e.g. after the month of delivery (this mainly applies to power products). In order to transmit the cost data, it is necessary to have as many time series as the product has payment components. A two-rate power product may have, for example, 5 different components, and therefore 5 other price-time series are transmitted in addition to the hourly metering data. The message alternative would therefore be extremely heavy, which has already raised concerns among messaging professionals. The use of messages would also seem to require that the network company has its own detailed billing system, in which case achieving the desired savings would be more difficult than in another alternative.

**A centralised solution for a price database for distribution products** would be based on the maintenance of a joint statutory system, to which system operators would be obliged to notify their up-to-date price information valid at any given time. The vendor's billing system should be able to automatically seek the price information from the database. A centralised database should therefore have an unambiguous open interface for this purpose.

Further, the solution requires that the structure descriptions of distribution products must be defined with universal calculation algorithms that can be read with machine codes.

System operators and vendors are already today transferring their price information electronically to the Energy Market Authority (EMA). Therefore, the first thing to do would be to establish how this service could be utilised and expanded further to be used in joint billing.

18 February 2011

Both procedures involve their own challenges due to different product structures in distribution. The network companies already have an extremely great spectrum especially in the determination of power products. A fee determined according to power may be based on powers calculated in different ways for a different month or months with respect to the billing month. The price may not be determined until after the delivery month, and therefore in these cases daily sending of time series for hourly prices is not successful.

### Comparison of centralised solution and hourly time series messages

With respect to individual viewpoint, it has been estimated whether the factor is positive (+) or negative (-) in view of selecting the alternative in question. The steering group also assessed the strength of the factor between the pluses and the minuses (0...3)

Centralised database solution	points +/-	Hourly price time series	points +/-
EMA already has a database that could possibly be developed further for this purpose.	+	Volume of data exchange increases. The number of time series is multifold compared with the transmission of metering data.	---
Vendor always receives price data from one place.	+		
Establishment costs are high. Demands for availability (and risks of non-availability) are high.	--	Data transfer may be expensive depending on operator pricing.	-
Network companies already transfer data to EMA.	+		
The database must have an open interface independent of the system so that the vendor's billing system can automatically seek the price data.	+	System operator will calculate the share of costs for all payment components for each hour.	++ (vendor)  -- (network company)
Product structure description must be determined with universal, simple and standardised calculation algorithms.	++	It may not be possible to transmit the information of all products every day. The price is determined in arrears.	-
The vendor is responsible for the correctness of the calculation. How extensively does the network company want to verify?		In this alternative, the network must have its own calculation system.	---
Both may be good alternatives as they make the companies to significantly update their old data systems.			
In both models, the network is responsible for the correctness of initial data.			
Both solutions require harmonisation of distribution product structures.			

The steering group ended up **recommending the centralised database solution for distribution prices** as the implementation tool for joint billing instead of the messaging solution. It may be deemed justifiable to adopt the centralised solution also for other reasons

18 February 2011

than joint billing, such as due to the growth in the mass of data exchange required by hourly metering or as part of the implementation of the Nordic retail market. The distribution price database does not necessarily require, e.g. a centralised metering database, but the implementation of the price database may be facilitated if the metering database is also implemented anyway.

In the Finnish studies, it would be sensible to expand the existing databases of the EMA, e.g. with a price database. As part of the development of the Nordic retail market for electricity, it should be established whether a centralised distribution price database should be a common one instead of national solutions.

Implementation of an effective and well-functioning joint billing system would require that the vendors' billing systems are able to apply the various distribution products in use and their pricing structures. This was deemed to require some degree of standardisation of the structures of distribution products, especially those of power-based products, which are also becoming more widespread among small-scale customers. On the other hand, the network companies want to reserve the right to utilise in the future e.g. the possibilities of a smart grid also in the pricing of distribution.

As stated above, the desired model for joint billing should be as clear, simple and easy as possible for the customers. The proposed operating process for a **financial report** is defined with the assumption that the system operator will send the vendor a single vendor-specific distribution bill. The vendor pays this bill to the system operator regardless of the customer's payment date or non-payment. The vendor charges the customer's entire electricity bill (including both energy and distribution) to itself, in which case the vendor may demand a security also with respect to the distribution bill.

In the proposed operating model, the financial settlement between the system operator and the vendor does not depend on the billing rhythm between the vendor and the customer. Instead, the vendor may freely agree with the customer on electricity billing and its terms (number of electricity bills, due dates, payment method) and the financial settlement between operators is managed according to jointly agreed procedures.

As in data exchange, in the financial settlement the solutions must be selected so that the target of total cost effectiveness is achieved. It is estimated that the greatest cost savings for the system operators will be achieved from the termination of customer services related to the sending of bills, as well as billing. Savings are also assumed to be gained if joint billing can be arranged so that the network company does not need a mass billing system of its own at all. Implementation of this saving depends on whether data exchange can be arranged so that the network company no longer needs a system of its own, capable of mass billing. In such a situation, it should be considered how the network company's vendor-specific distribution bills, i.e. the system operator's accounts receivables, will be formed.

In the process described above, it is proposed that the vendor presents to the network company a (distribution) **bill proposal** formed on the basis of the metering and price data received from it. On the basis of this proposal, the network company will then form a bill valid for accounting purposes. The system operator can decide in accordance with its own policies whether it will verify this amount of its receivables from an individual vendor approximately from the balance settlement data or accurately with respect to each metering point.

The operating model does not take a stand on whether the vendor should calculate a proposal for a distribution bill for all metering points on a monthly basis or whether the billing rhythm between the system operator and the vendor also depends on, for example, the sizes of the metering points. To facilitate the simplicity and automation of the model, it is recommended that distribution billing between operators always takes place on a monthly basis following the same principles for all metering points. It should be noted, however – when the vendor and customer can freely agree on other billing rhythm – that the vendor will bear the interest losses arisen, depending on the rhythm of electricity billing agreed between the vendor and

18 February 2011

the customer. In future, it must be established whether interest costs should be taken into account when defining common procedures.

Alternative model 1. As an alternative to the distribution bill proposal and the bill sent by the network company, there could be a procedure in which the vendor pays the network company according to an account it has drawn up itself, and the network company can then verify the account to the same extent as the proposed bill. This procedure would be quicker.

Alternative model 2. One of the people commenting the report suggested maintaining the network companies' billing systems, in which case the vendor would verify the correctness of the consolidated bills it has received, e.g. based on the information received in balance settlement.

The question of how the **vendor's security to the network company** should be arranged is raised as a new sub-question in the operating model. We will return to this question in the section concerning the division of responsibilities, as well as to the question of discontinuing the vendor's operations after a default of payment.

Currently, **the customer must be notified of any changes** in the prices of electric energy and also of distribution at least one month before the change enters into force. If the vendor starts to bill the customer on behalf of the network company, the network company will no longer be able to send change notifications on the customer's distribution bill. As the steering group has stated that it is not aware of cases where distribution bills would have been used extensively as a tool for sending change notifications, it has not dealt with data transfer from the system operator to the vendor for the purpose of customer notifications. It should also be taken into account that the vendor's customer services cannot have sufficient information about the background and reasons for changes in the distribution prices of various network companies. Network companies could carry on sending change notifications to their customers in a separate letter, in a customer magazine or – if so agreed – by e-mail.

The vendor will also need to know about any changes in the prices of the distribution product for the purpose of billing.

If joint billing is introduced, every electricity bill should state the name of the customer's network company and its fault service, and also possibly the telephone number of the general service. Correspondingly, the network company must have information about a valid fault reporting number available to the vendor (perhaps in a centralised system).

The network company must have up-to-date information about the customer's contact details for the purpose of price changes and also, e.g. for notices on interruptions, etc. In the 'one bill' system, customers would send change notifications to the vendor who should notify the network company of the changed contact details.

## **7. Joint billing and the current legislation and other regulations in Finland**

According to Chapter 6 a, section 25 d, subsection 3 of the Electricity Market Act, a user of electricity encompassed by the obligation to delivery shall have the opportunity to agree with the retailer that the contract includes not only electricity sale but also the system service required by electricity transmission. The Act does not mention electricity bills.

The Energy Market Authority's regulation on itemisation of bills concerning electric energy and electricity transmission (367/441/2006) shall be applied to bills that the electricity vendor or the distribution system operator send to their customers for electric energy and/or electricity distribution. The regulation does not state anything about the right or obligation to send a joint bill.

Billing for electricity is referred to in Chapter 6 of the Terms of Electricity Sales and in Chapter 7 of the Terms of Network Service. However, the terms do not state anything about the right

18 February 2011

or obligation to send a joint bill. Moreover, it should be taken into account that the terms are not part of the legislation and do not, as such, oblige the electricity companies. Section 38 a of the Electricity Market Act requires that the system operator has terms of transmission service, which are to be ratified by the electricity market authority. However, the Act does not state anything else about the contents of the terms. According to law, the sales terms do not have to be ratified by the authorities.

Based on the above, the law does not require, support or prevent sending one bill.

## 8. Issues of the division of responsibility

One of the key problem areas in joint billing is how to act in cases of a) the customer's or b) the vendor's inability to pay. The steering group discussed a number of different alternatives for the division of responsibility.

The first area to be decided is the management of the **vendor's credit loss risk and interest costs**, as well as organisation of customer services related to billing and debt collection. The target of clarity in joint billing, as defined above, requires that the body responsible for debt collection does not change in the middle of the debt collection assignment. Therefore, it would be the vendor's responsibility to file a suit for a claim against the customer all the way to the end of the process. An individual credit loss would always be the vendor's responsibility. Also, from the viewpoint of cost effectiveness, we should build a model that is as clear and straightforward as possible.

The steering group had a long debate over different possibilities of organising the return of the distribution section of a bill that the customer has defaulted to be collected by the network company or for it to suffer a loss as a result. It was stated that the currently used procedures cannot be adopted as a starting point in situations where a vendor with a delivery obligation bills for distribution on behalf of the local network company and the credit losses are shared pro rata to the receivables of the vendor and the network company. According to the steering group, this kind of a procedure would be very complicated between different groups of companies, e.g. with respect to data systems. In both sales and network operations, the number of operators is very high in Finland, not to mention all the Nordic countries. If significant numbers of back-and-forth transfers take place with this number of operators, it would probably lead to problems.

A solution resembling the above-mentioned alternative where the vendor would pay the fees to the network company as and when the customers pay them was also turned down. It was mentioned that this would be a very cumbersome alternative in terms of information technology. This alternative would pose greater demands on the system operator's systems than the model where the vendor bears the responsibility for collection and the credit loss risk. The alternative where the vendor's payments to the network company are not dependent on the timing of customer payments was seen as a considerably clearer one in terms of the structure of the system. This way, e.g. the frequency of customer bills can be agreed on freely, although it is clear that further payment of distribution fees, e.g. once a month, has an impact on the vendor's possibility to offer long billing or payment periods. A large number of domestic customers have been satisfied with a billing frequency of several months, and a change in this respect is probably not welcome.

We also discussed the vendor's possibility of returning a bill receivable, for example, to be collected by the network company at the time of sending a disconnection warning. Here, too, we encountered similar problems with information technology as stated above. Therefore, the alternative would be against the targets of clarity and cost effectiveness set by the working group. Moreover, the arrangement would be confusing for the customer as debt collection would transfer from one operator to another, and after that in several cases once more to the collection agency.

18 February 2011

This kind of an arrangement would require that the entire market operates in the same way. Either all vendors carry the responsibility for credit loss also for distribution, or none do.

It should be self-evident that the vendor is entitled to demand this also with respect to distribution fees when a security can be demanded.

In principle, the credit loss risk burdening the distribution fees charged by the vendor should be taken into account in the amount paid by the vendor to the network company. If the vendor charged the network companies a service fee corresponding to the increase in its credit loss risk (the other way round 'credit loss risk reduction'), its definition should be completely mechanical. The matter could not be subject to negotiation. If the reduction was to be taken into use, however, the special characteristics of the customers in the area of the vendor's network could be taken into account in its calculation formula, e.g. the share of individual major customers or customers in an industry posing a particularly high risk. The calculation formula should be reasonably simple.

Furthermore, in addition to the service charge corresponding to the growth of the above-mentioned credit loss risk, the level or calculation formula of the service charge related to the billing costs for the benefit of the vendor should also be defined, i.e. how to assess the saving achieved with joint billing by the network company.

However, the steering group came to the conclusion that, as joint billing in the model under consideration would be an unexceptional procedure, a separate service charge or a reduction in case of credit losses or billing costs would not be needed. On the one hand, the **network company** would take into account in billing its **reduced customer credit loss and billing costs** (and if the securities are not deemed to be sufficient, its new credit loss risk concerning the vendor) and, on the other hand, the **vendor** would take into account, e.g. **its increased credit loss risk in its pricing**.

The customer could reasonably expect that his total expenses will not increase due to joint billing. Therefore, the costs arising from taking the network company's vendor risk into account, the securities given by the vendor to the network company and the vendor's increased customer credit loss risks should remain reasonable in relation to the savings resulting from the network company's diminishing billing costs and generally improved efficiency.

On the whole, joint billing would require quite considerable changes in the operating model and the way of thinking of the operators – both the network companies and especially the vendors. The vendor's risk increased by the share of distribution would force the vendor to consider its billing, credit, collection and security policy in relation to the entity of its offers.

The management of the vendor's **interest costs** is facilitated when the system operators' billing periods are harmonious with one another (e.g. always a calendar month). The joint harmonisation of network bills will not necessarily result in the same rhythm in sales bills: the vendor can offer financial services to its customers. If a charge is based, e.g. on the vendor's own account, its rhythm will probably have to be statutory.

**An alternative operating model:** If it is decided that the vendor cannot be saddled with the credit loss risk of distribution fees (several vendors have regarded consideration of increased credit loss risk in pricing as an unrealistic assumption), it will be necessary to come up with as clear a model as possible for transferring the credit loss to the network company and for the vendor being entitled to bill the network company for the share of the credit loss. The above-mentioned reasonable distribution of the credit loss risk has also been set as the target of the model.

In the above, the targets of joint billing include economy, which is aspired, e.g. with the fact that the network company will perhaps not need a mass billing system of its own. The target of clarity also advocates the fact that the number of



18 February 2011

credit losses charged to the network company should remain fairly small. The procedure should be the same for all vendors, i.e. the network company should not need to prepare itself for different kinds of procedures. Therefore, the vendor could not charge the network company for the share of the distribution fee very soon after discovering the payment default.

For example, to use the day of interrupting the delivery as a threshold of transferring the credit loss would be ill-advised with respect to the reputation of the industry because it would encourage rapid interruption to delivery instead of carrying out negotiations with the customer.

As a simple procedure, the vendor could charge the credit loss after it is recorded in its bookkeeping and the fee would be returned if collection is successful. The target of economy favours the fact that the vendor should continue collecting the total bill even after receiving payment from the network company. If the post-collection would yielded results, the vendor should credit the network company's account with an amount equalling the customer' payment. Interest should be taken into account.

It should be investigated in further detail whether the vendor could also charge the network company for the share of collection expenses, corresponding to the share of the bill to be collected, or a standard collection compensation, in addition to the distribution fee. Moreover, it should also be considered how a transfer procedure for a receivable that is as standard as possible could be implemented without at the same time hampering the vendor's (and the network company's) possibilities of using, e.g. outsourced collection services. In general, a regulated transfer of receivables from one operator to another will slow down the development of operating models in the industry.

If, however, it is deemed sensible in terms of the network companies to manage collection of their own accord, the vendors would transfer the receivables to the network company's collection unit. In such a case, the network company would pay the vendor the amount of credit loss and would receive for collection the share of receivables concerning distribution. Even in this case, the transfer should be connected to a time that is sufficiently late for the amount of transfers to be easily managed.

In any case, if a credit loss fee from the network company to the vendor or a transfer of receivables from the vendor to the network company are taken into use, several matters must be defined as a standard: the earliest possible time of the payment or transfer, processing of interest and collection charges, necessary accounts for unsuccessful collection, and reimbursement in arrears (if the vendor may charge the network company for the credit loss). Furthermore, the vendor should notify the network company of impending (individual or combined) credit losses exceeding a certain amount.

Changes to the current situation in this alternative operating model would be smaller than in the basic model discussed elsewhere in this report: the shares of credit losses in distribution would not be burdening the vendor for good.

The network company, on the other hand, requires security against the **vendor's inability to pay**. The **vendor's security** (necessity, amount, duration) for the network company is also an issue that would be difficult to solve through negotiation. There should be fully standardised procedures and a public calculation formula for the amount of security. The need for a security would mainly or solely be based on the volume of sales in the vendor's network area. The matter is not easy in any case: demands for a high security could prevent market entry. On the other hand, it must be noted that the vendor is already now required to have securities, e.g. for balance settlement or operations on the electricity exchange.

18 February 2011

Due to the great number of parties, the steering group came to a decision to recommend the **centralised management system for securities**. Joining the system would be compulsory for all vendors and network companies. Instead of individual network companies requesting securities of varying amounts from different vendors, the securities management should be centralised. As joint billing is, in practice, connected to balance settlement, for example, the planned Nordic balance settlement unit owned by the grid companies could be a suitable centralised manager of the securities service. In any case, it must demand securities from market players for balance responsibility. Moreover, in joint billing, the amount of security demand would also basically be based on the same information as in the balance service, i.e. the sales volume.

The network companies would be obliged to accept the securities administered by a centralised system. In case of the vendor's bankruptcy etc., each network company losing its distribution bills would get their outstanding receivables from the centralised securities system. If the amount of security were not sufficient for some reason, the amount would be divided between the network companies in proportion to the vendor's monthly sales volumes. The recommendation is this and not, for example, in proportion to the distribution bill receivables, as this way the procedure would encourage the network companies to put a gap on the accrual of the distribution bill debt of individual vendors.

The operating model increases the network company's risk resulting from the vendor's delayed payments. The amount of the security must be a compromise that cannot cover a debt accrued over a very long period of default. The functioning of the model requires a procedure on how the **network company can interrupt the vendor's operations due to delayed payment** and, e.g. after one reminder in its area of responsibility. However, the speed of interruption is restricted by, e.g. customer protection: the customer must have sufficient time to draw up a new contract with a vendor of his choice.

The Electricity Market Act (section 27 h) already includes a provision in case of the termination of the vendor's operations. According to the Act, the network company is responsible for sales for the customers of a vendor that has discontinued operations for at least three weeks after the dispatch of the notification to the customers. Delivery to customers encompassed by the obligation to deliver may not be interrupted until the electricity market authority has designated a new retailer.

As a means to shorten the time required by the interruption process and, that way, to diminish the amount of security demands, the steering group recommends that the network companies should be imposed with an obligation to put out to tender the so-called **default supplier** for their area of responsibility. Another alternative is that, e.g. the Electricity Market Authority would put out to tender one or several default suppliers for the country. A third alternative would be to expand the tasks of vendors with a delivery obligation to also include default sales.

The default supplier would, e.g. automatically, with public terms and prices, take on customers of vendors who are leaving the market, and these customers could rapidly invite tenders for new contracts and give notice of termination of their default contracts. It seems that the pricing of the default supplier would inevitably be tied to the Finnish area price quoted on the electricity exchange, because the default supplier could not predict the volume of its possible future sales and therefore hedge against its price risk. The customer, on the other hand, can easily get rid of the default supplier's sales, if he so wishes.

With respect to the interruption procedure and the operations of the default supplier, efforts should be made already in the early preparation of the project to aim for discussions with the energy market authorities and the competition and consumer authorities.

The tasks of the default supplier could include, e.g. taking care of the billing for maintenance fees of connections without a network contract on behalf of the network company. That way, the network company would not have to maintain a billing system for electricity distribution.

18 February 2011

In this operating model, collection for the customer's electricity bill for both the network service and the sales part would be the task of the vendor. When both the customer and the vendor have defaulted on their payments, the default supplier would step in for the delivery starting from distribution instead of the vendor. The original vendor or its bankrupt's estate would carry on with the collection of its receivables for previous electricity deliveries as normal. Furthermore, in compliance with the normal rules concerning insolvency, the network company would recover its receivables from the security lodged by the vendor and, for any exceeding part, from the vendor itself. The party providing security, for example a bank, on the other hand, could have a right of recourse from the (original) vendor.

In relation to the division of responsibility, at least the following issues that are generally binding for the parties should be decided in legislation or contracts:

- customer security: definition of security, harmonisation of different security practices of companies, realisation of security, security for refundable connections must also be taken into account
- mutual security in the industry; is it required and if so, at all times or on some determined grounds, how the amount of security is determined and whether some centralised security service is used
- interruption of joint billing, procedure in case the vendor does not pay the distribution bills
- allocation of bills if only part of the total bill has been paid
- scheduling of bill proposals and payments made by the vendor to the network
- notifying the vendor charging the customer and the customer of changes in the distribution price
- incidental fees (e.g. service charges, reimbursement of standard compensations to the customer)
- collection: reminders, interruptions, bankruptcies, debt restructurings and reorganisations, etc. including costs
- credit losses and their allocation
- adjustment bills
- billing error due to the sender of billing details or, correspondingly, the vendor sending the bills; the body making the error would bear any loss
- payment problems of vendor billing the customer and the customer's protection
- electricity tax account
- compiling of annual statistics
- confidentiality.

## 9. Joint billing based on a contract

As stated above, Finnish legislation does not prevent the implementation of voluntary joint billing.

If it is believed that joint billing could be achieved on the basis of contracts, it will be sufficient to draw up a common contract model (and standard terms) between the network companies and vendors. The bargaining range in the contract model should be as narrow as possible. In standard contracts, at least the issues of responsibility listed in the previous section should be agreed on.

If a decision is made to introduce a procedure based on a joint definition work in the industry, the acceptability of the arrangements under consideration with respect to competition law should be verified. However, we could regard it as a preliminary starting point that a general system would create benefits of efficiency to the advantage of the consumer as opposed to the more cumbersome system using negotiations in individual cases, and therefore the arrangement would probably be acceptable in view of competition policy.

If the model were to be based on a common technical definition in the industry, it should be defined which body will draw up the definitions, how the work will be funded, and other such

18 February 2011

practical issues. Furthermore, it should be decided how all operators are obliged to use the common ways of operation.

In the above, cost savings for customers, or at least the fact that the costs will not rise, have been set as the common target for joint billing. It is believed that this will only be achieved by harmonising the operating model for the entire industry. If the implementation of joint billing is voluntary and dependent on the results of negotiations between vendors and network companies, which are more or less individual, cost savings from the implementation of a harmonious model will not be gained. The reason for this is that individual companies may have divergent views on the general desirability of joint billing and especially on the individual methods of its implementation.

The steering group does not believe in the possibilities of extensive introduction of joint billing on a voluntary and contractual basis due to various practical obstacles that will arise, although that kind of an approach would be generally desirable for the industry as there would be no need for intervention by the authorities or the legislator. Therefore, the cost savings gained from joint billing would not be achieved.

On the other hand, it should be noted that it is quite possible that something will still be subject to negotiation, even in joint billing based on legislation.

## 10. Joint billing based on legislation

It is hard to believe that a functioning and sufficiently harmonious joint billing practice could be achieved within a reasonable time schedule purely on the basis of voluntary contracts. Therefore, we must consider how legislation should be changed.

Probably the best solution in this case would be a general provision on the obligation to form a joint bill to be added to the Electricity Market Act. Moreover, the ministry (or the electricity market authority) should be granted general authority to issue more detailed provisions on the division of responsibility over the bills or, alternatively, the industry itself should create a standard contract by virtue of the provision in the Electricity Market Act. As the procedure should be general and non-discriminatory, the model that is probably the most feasible would be a general provision and the powers to issue decrees laid down in the Electricity Market Act, as well as the Ministry's decree on the implementation of joint billing in electricity. A number of other new provisions, e.g. on the default supplier, should also be added to the Electricity Market Act, if such a decision is made.

The law and decree should deal with all of the issues referred to in the above-mentioned list of subjects related to the division of responsibility. A possible target could be that it would not be necessary to draw up a contract on joint billing between the vendor and the network company (unless they want to jointly agree on something that is out of the ordinary), but it would be a completely standard and automatic procedure. This would be based on the fact that questions related to, e.g. the obligation to pay, payment transactions, securities, centralised security systems, etc. would already have been dealt with in the Act and Decree. When the vendor notifies the network company's area of responsibility of the start of sales, this notification would also mean taking on the responsibility for billing. Correspondingly, the vendor would also join the common security systems for distribution receivables with respect to the network in question and would provide a sufficient security for it. In later preparation, it will still be possible to leave individual questions to be solved in agreements between vendors and network companies, if necessary (e.g. date of bill formation).

In a legislation-based solution, the competition law and policy should be considered already in the legislation stage, and that way the situation would be clearer in view of the industry.

In addition to the general provision, joint billing would result in the need for change also with respect to, e.g. the provision of the Electricity Market Act on the interruption of electricity supply (section 27 i).

18 February 2011

If joint billing is introduced, in respect of other legislation, it will raise the issue, e.g. on whether the obligation to pay electricity tax should be transferred from the network company to the vendor for simplicity's sake.

Preparation to create a Nordic retail market for electricity is under way. A key question to be resolved is the arrangement of the customer interface and especially billing. In its proposal for an implementation plan, NordREG has proposed joint billing at least in the longer term. If joint billing is settled on in the joint Nordic preparation, the questions in this report will become current at a rapid pace.

## **11. Further action – recommendations of the steering group**

In its work, the steering group has aimed to define a sensible and feasible operating model for joint billing. In its last meeting, the steering group deemed that the benefits expected from joint billing would probably be achieved according to the above considerations to the extent that introduction of joint billing is at least worth investigating further.

However, the steering group points out that it has not investigated, and neither did it have the resources to investigate the advantages and costs in euros resulting from any change.

With respect to Finnish Energy Industries, consideration of any further measures in the matter will be submitted to the Committee for Electricity Supply and Trading and the Committee for Electric Networks. The steering group proposes further work on the matter.

However, it is not sensible to implement joint billing in conflict with the work aiming to achieve a Nordic retail market, and therefore the progress of this project should be monitored with respect to billing. This work could also be used as background investigation in future Nordic work when considering the solutions of the customer interface on a general level.

As the draft of this report was circulating for comments in Finnish Energy Industries' Committee for Electricity Supply and Trading and the Committee for Electric Networks, as well as in the appropriate working groups, the following proposals for further investigation were received in addition to the need for above-mentioned cost-benefit analysis and participation in Nordic development:

- The availability of a clearing house model used in the telecommunications industry should be investigated.
- The applicability of the procedure proposed for the handling of credit losses should still be verified in terms of accounting legislation.
- On the general level, consideration of the customer's viewpoint and smart grids was reminded of.