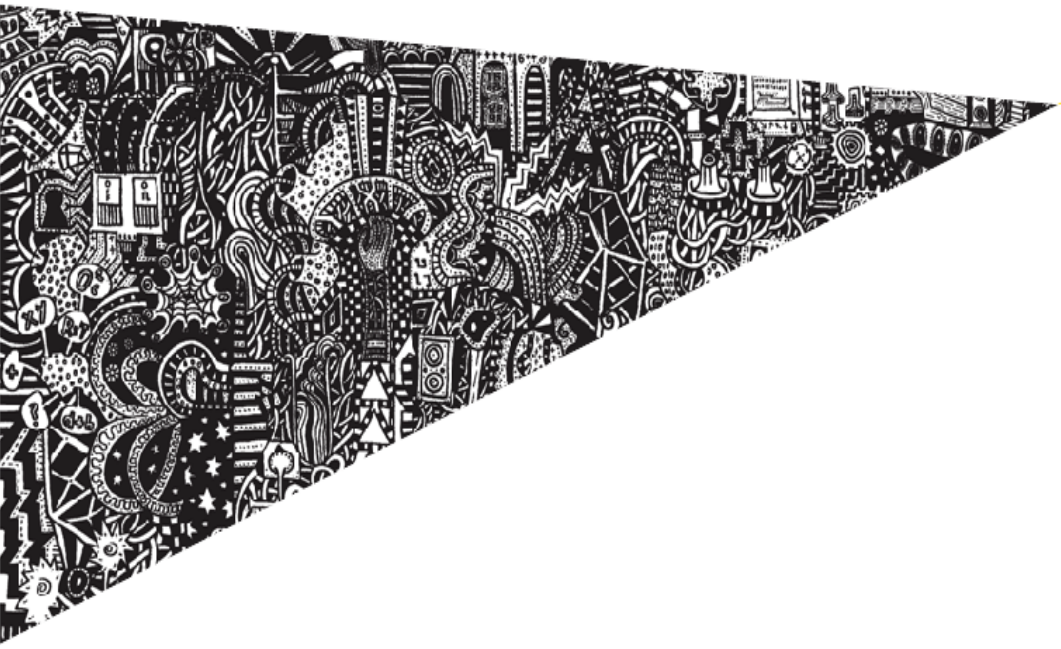
Credit risk management in future billing regime

A common Nordic end-user market with combined billing

Stockholm, 9 May 2012



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1. Foreword

The report has been compiled by Ernst & Young for NordREG and was delivered on 1 March 2012. It provides a credit risk management perspective on a future billing regime. Ernst & Young has also compiled a separate tax report on the future billing regime, which complements this report with a tax perspective.

2. Executive Summary

This report provides a credit risk analysis of a common Nordic end-user market with combined billing from a supplier centric-perspective, as recommended by NordREG in December 2011. The content of the report is divided into two parts:

1. High level description of the billing process and national credit risk solution in the current electricity market in the Nordic countries
2. Risk analysis of possible future billing scenarios with credit risk arrangements

The high level description of the current billing process and national credit risk solution in the electricity market covers a short description of the billing process in the Nordic countries. This part includes, among other analyses, a description of what happens if the end-user fails to pay the invoice, the national credit risk solutions currently in place in order to mitigate risks, as well as a comparison between the Nordic countries.

In the second part of the report a credit risk analysis connected to different future billing scenarios has been conducted. In addition, arrangements that could be put in place in order to mitigate these credit risks have been identified.

Ernst & Young has analyzed six different scenarios for the future billing regime. These scenarios have been analyzed from a credit risk perspective, but the six important requirements from *Consideration of alternative billing regimes for the common Nordic end-user market* (Vaasa ETT) have also been taken into account; *1. Customer friendliness 2. Well-functioning common market 3. Improved competition 4. Improved efficiency 5. Compliance with EU regulation 6. Development and neutrality of DSOs*.

Scenarios that have been analyzed are:

- Scenario 1 - DSO sells his receivables to the supplier, who invoices the total claim to the end-user. The end-user is in debt only to the supplier.
- Scenario 2 – Supplier invoices the total claim, including the DSOs claim in the name of and for the account of the DSO. The end-user is in debt both to DSO and Supplier.
- Scenario 3 – Same as Scenario 2 with an arbitrary third party between DSO and supplier in order to equally share bad debts between all DSOs, i.e. to protect single DSOs against insolvent suppliers.
- Scenario 4 – Same as Scenario 2, with an arbitrary third party assigned to split monetary stream accurately between end-user and DSO/supplier.
- Scenario 5 – DSO and supplier sells their receivables to a financial third party. Financial third party invoices the total claim to the end-user. The end-user is in debt only to the financial third party.
- Scenario 6 – A common third party print shop is used to invoice both DSO and supplier claims in the name of and for the account of the DSO and the supplier. A common third party assigned to split monetary stream accurately between end-user and DSO/supplier.

All scenarios have been described on a high level and the main credit risks have been stated in connection to all scenarios. In order to identify a preferred scenario, deemed most viable for a future billing regime, each scenario has been analyzed from a credit risk perspective, while also taking the requirements stated in *Consideration of alternative billing regimes for the common Nordic end-user market* (Vaasa ETT) into account.

The high level analysis of the six scenarios is followed by a conclusion on which scenario Ernst & Young finds most viable for a future billing regime.

3. Introduction

3.1. Background

In 2009 NordREG published the report “Market Design, Common Nordic end-user market”. In the report NordREG mapped present end-user market models in the Nordic countries (excluding Iceland) and identified issues that should be harmonized in order to establish a common Nordic end-user market.

In 2011 NordREG published another report, “*Rights and obligations of DSOs and suppliers in the end-user interface*”. It describes the roles and responsibilities of the DSOs and suppliers in the end-user interface.

NordREG has also published a report written by a consulting firm, *Consideration of alternative billing regimes for the Common Nordic End-User Market* (Vaasa ETT). This report serves as a basis for NordREG’s decision concerning the choice of billing regime in the Nordic end-user market.

One of NordREG’s next steps in the effort to create a common Nordic end-user market is to describe, analyze and compare how a mandatory combined billing model will work from a credit risk management point of view. Ernst & Young was assigned this study and the findings of this study are presented in this report.

3.2. Objective

The objective of this study is to investigate new or changed credit risks that could occur in a common Nordic end-user market with combined billing for DSO and suppliers. The objective could be summarized as follows:

- Description of appropriate arrangements to ensure credit risk is generally allocated appropriately between suppliers and DSO
- Highlight consequences of different arrangements and evaluate whether these methods should be regulated or handled as voluntary

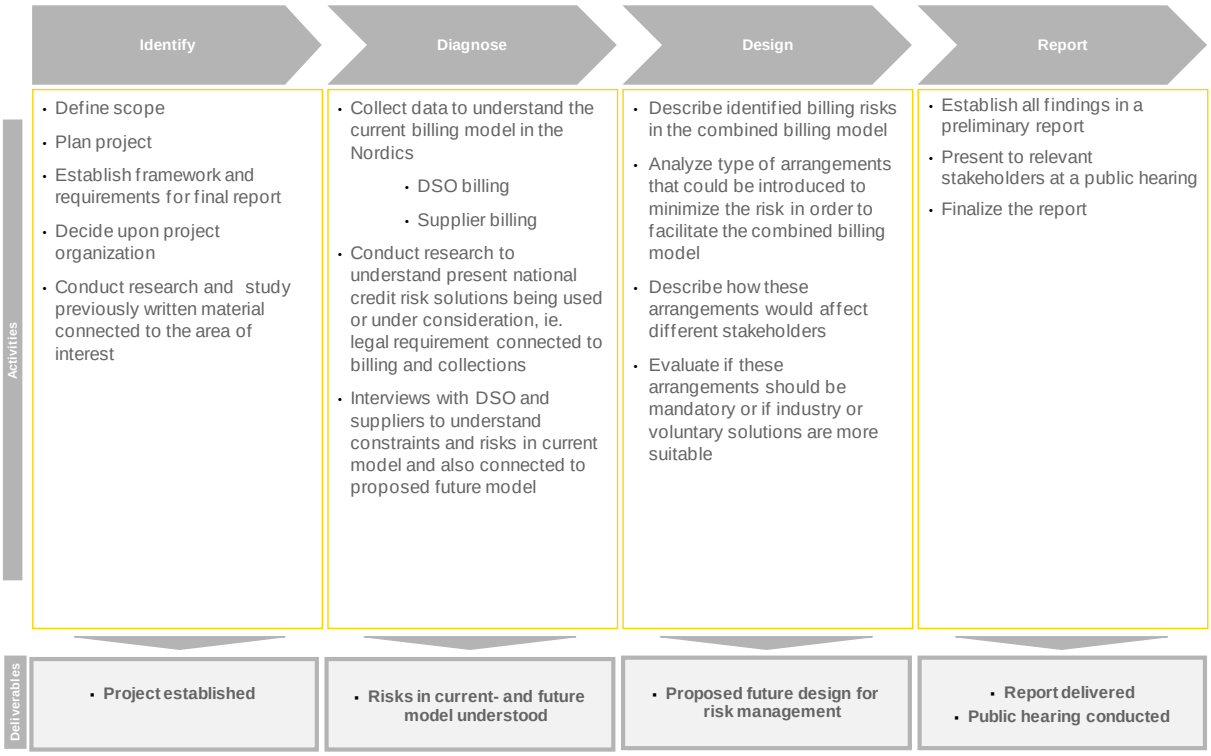
3.3. Scope of the study

All proposals and suggestions on credit risk arrangements are based upon the preferred mandatory supplier centric model.

The study primarily covers the following areas:

- High level study of the most common billing models used by DSOs and suppliers in Sweden, Norway, Finland and Denmark
- High level analysis of current legal requirements connected to billing and debt collection processes in Sweden, Norway, Finland and Denmark
- Credit risks in current and future billing regimes, as well as arrangements aimed at mitigating credit risks in the future billing regime

3.4. Methodology



1 Project plan – Identify, diagnose, design and report

The project was divided into four main steps: identify, diagnose, design and report.

The report is based upon NordREG's recommendation concerning the future billing regime, as well as previous studies conducted within the field, such as:

- *Consideration of alternative billing regimes for the Common Nordic End-User Market* (Vaasa ETT)
- *Rights and obligations of DSOs and suppliers in the end-user interface* (NordREG)
- *Billing suggestions for Supplier Centric Model* (Tieto)

The report has been compiled through desktop research and interviews with key stakeholders. A number of interviews with stakeholders in the Nordic electricity market have been conducted throughout the project in order to take into account their perspective.

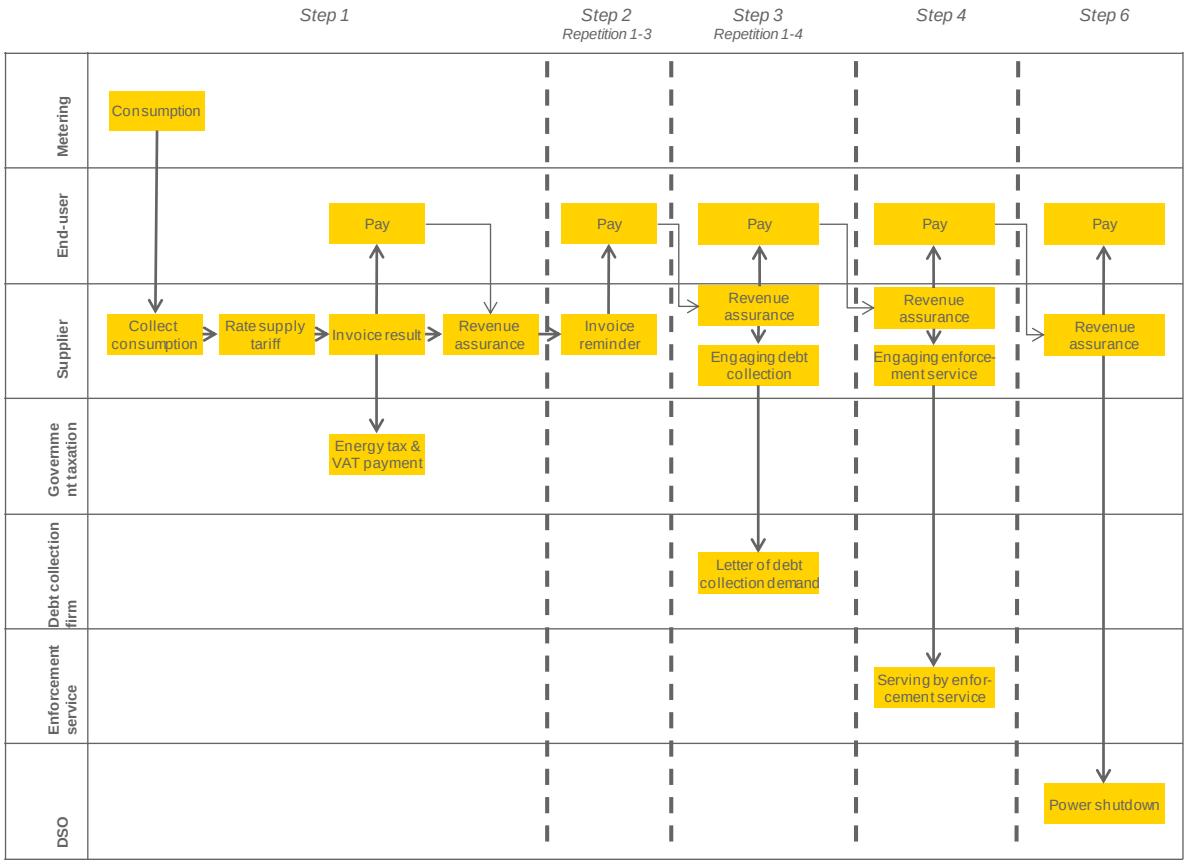
The report only covers credit risk management, but has been written in close collaboration with Ernst & Young TAX, that has been assigned by NordREG to analyze the supplier centric model from a tax perspective.

4. Billing process and national credit risk solutions

4.1. High level Nordic description of the billing process

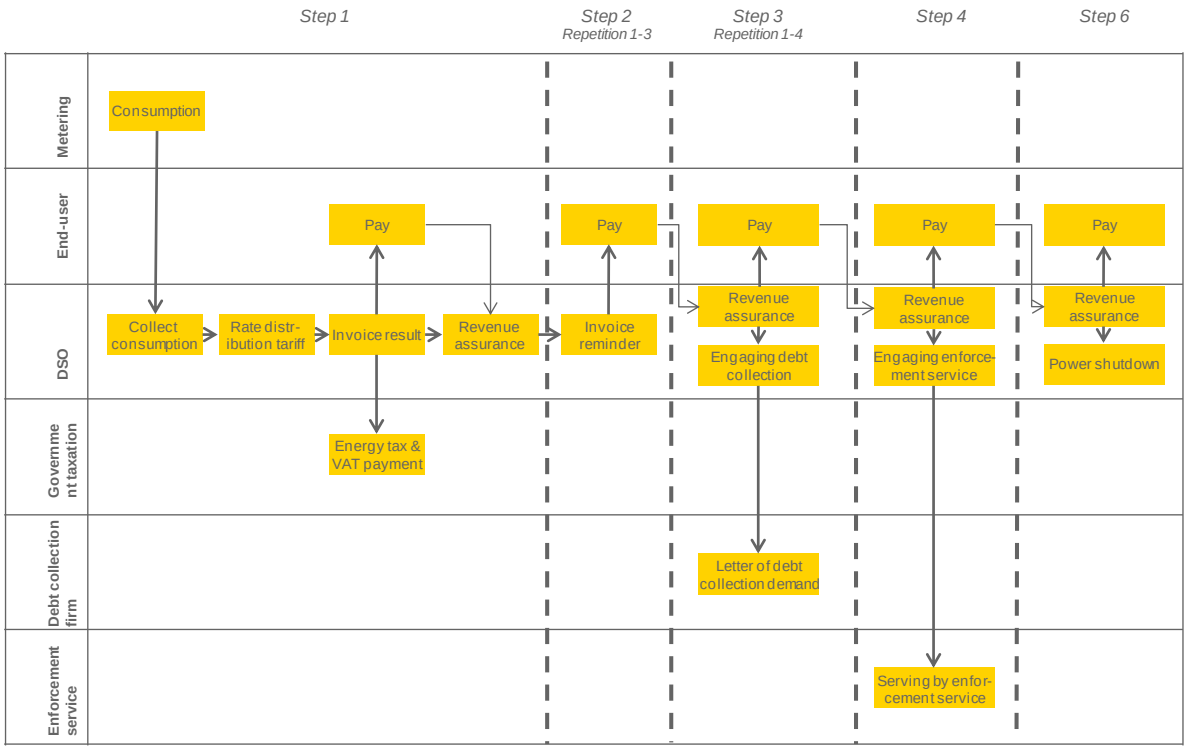
4.1.1. High level Nordic description of the billing process for supplier and DSO

The high level description of the billing process is based upon that the supplier and DSO are separate corporations. If the supplier and DSO are within the same group only one billing stream occur.



2 High level Nordic description of the billing process for supplier[1]

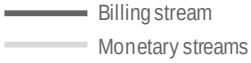
[1] The stakeholder responsible for energy tax payment varies between the Nordic countries

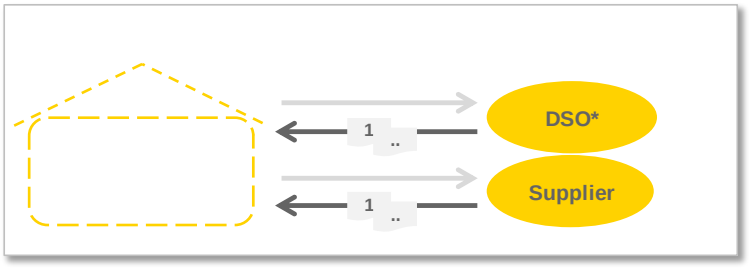


3 High level Nordic description of the billing process for DSO[2]

4.1.1.1 Step 1

This is the ordinary billing process taking place if end-user pays invoice within due date to the supplier or DSO. [3]





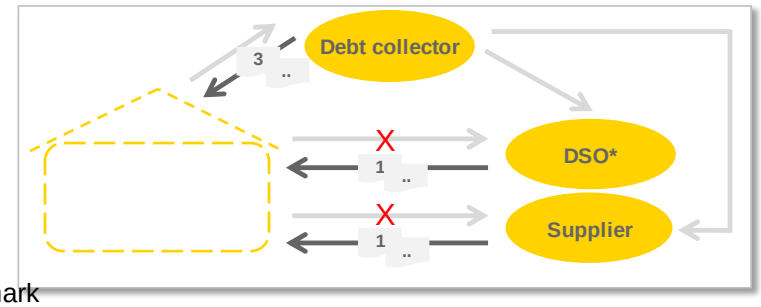
4 Step 1 and 2 in billing process

4.1.1.2 Step 2

Step 2 takes place if the end-user does not pay within the due date. In this case, a voluntary payment reminder is distributed from the supplier or the DSO. This process could be re-peated, where number of repetitions varies between service providers, type of end-users and countries.

4.1.1.3 Step 3

If the end-user defaults his pay-ment, a debt collection firm can



5 Step 3 and 4 in billing process

[2] The stakeholder responsible for energy tax payment varies between the Nordic countries

[3] * All billing through supplier in Denmark (if end-user has not switched supplier)

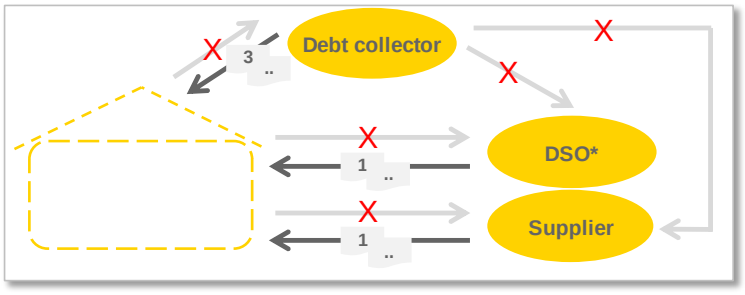
be assigned to carry out a debt collection demand. The debt collection firm charges a fee, usually a fixed fee + interest. The number debt collection letters varies between the countries and service providers

4.1.1.4 Step 4

If the end-user defaults his payment to the debt collection firm - enforcement service can be initiated to carry out an enforced collection.

4.1.1.5 Step 5

In the situation where the end-user defaults his payment to the enforcement service, the DSO or supplier has the right to cut the power. The end-user could object to the decision made by enforcement service and start a legal process in court.



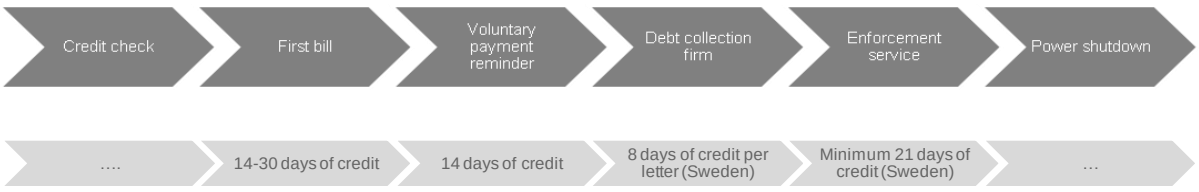
6 Step 5 in billing process

4.2. National credit risk solutions

4.3. High level Nordic comparison

Comparison parameter	Sweden	Denmark	Norway	Finland
Billing frequency from DSO/Supplier?	Varies between companies and end-user. Taking different parameters into consideration. Common billing intervals are 1/2/3 month.			
Days of credit first invoice from DSO/Supplier?	15 days industry praxis			
Supplier of last resort	Appointed supplier. Within same group as DSO if possible			
Number of days between first invoice and voluntary payment reminder?	7 days	10 days	14 days	14 days for consumers (other users not regulated)
Minimum number of days between claim from enforcement service and the right for DSO or Supplier to cut the power?	21 days	No min. days, but reasonable suspicion that claims will not be paid.	28 days (DSO)	Min. 6 weeks after the original due date for consumers (other users 5 weeks)
Maximum number of month before billing for DSO and Supplier?	3 Month	No regulation. Billing frequency has to be *"non-discriminating, objective and fair"* and approved by the Danish Energy Regulatory Authority	3 month	No regulation
Combined billing for DSO and Supplier if within same company?	Yes	All billing through Supplier	Yes	Yes
DSO: Number of month for security and pre-payment for residential customers	4 resp. 6 month calculated electricity distribution	All billing through Supplier	Credit check 4 month pre-payment	Max. number of month from start of invoicing to possible power shut down ~4 months
Supplier: Number of month for security and pre-payment for residential customers	4 resp. 6 month calculated electricity supply	1 to 6 month of estimated electricity consumption	Credit check 4 month pre-payment	Max. number of month from start of invoicing to possible power shut down ~4 months
Fee for payment reminder after first invoice?	60 SEK	Max. 100 DKK	61 NOK	Max. 5 EUR + interest
Fee for debt collection demand?	160 SEK + interest per payment request (max.3)	Depending on debt amount + interest	From 306 NOK + interest	21 EUR/ 46 EUR* + interest per payment request (max. 2)
Supplier and DSO invoice for consumers based on actual or estimated reads?	Actual	Actual / Estimated	Actual	Actual / Estimated

7 Nordic comparison of billing process and national credit risk solutions



8 Billing process for DSOs and suppliers – what happens if the end-user fails to pay the invoice

Credit check – supplier and/or DSO conduct a credit assessment of the end-user from case to case, where the number of months per security varies from 1 to 6 month calculated electricity distribution and supply between the Nordic countries and P&U companies.

First invoice – DSO and supplier provide the end-user with a first invoice and offer a variety of payment alternatives. DSO and suppliers has to send the invoice after a fixed number of months at the minimum, which varies between 3-4 month in the Nordic countries, except for in Denmark, where no maximum number of months applies. However, shorter billing periods are also provided from DSOs and suppliers.

Voluntary payment reminder – DSO and supplier could send out a voluntary payment reminder before engaging a debt collection firm. Number of days between first invoice fall due and voluntary payment reminder varies between the Nordic countries and P&U companies,

from 7-14 days. Total number of payment reminders sent from DSO and supplier differ between the Nordic countries and P&U companies.

Debt collection firm – if the end-user does not pay the first invoice or payment reminder after a certain time period, a debt collection firm could be engaged in order to collect the outstanding debt. Debt collection could also be placed within the organization of DSOs or supplier. Number of debt collection demand letters and fee varies between the Nordic countries and companies.

Enforcement service – enforcement service is engaged if end-user cannot pay debt collection demand from debt collection firm. If the end-user and DSO or supplier cannot come to an agreement regarding payment, an enforcement service could levy execution on the end-users belongings and thereby raise money to cover the claim.

Power shutdown – if the enforcement service does not receive the money after a certain period of time, power will be shut down. Number of days for power shutdown varies between the Nordic countries, P&U companies and from case to case. All costs connected to the reconnection of power should be covered by the end-user.

4.3.1. Denmark

Laws and regulation in Denmark: the Danish billing process for DSOs and suppliers is regulated by "Energitilsynet", "Energistyrelsen" and "Elforsyningsloven". General requirements that apply to all billing processes are regulated by "Selskabsloven" and "Bogføringsloven".

Stakeholders in the process are: enforcement services, debt collection firms, end-users, DSOs or suppliers and court instances.

Suppliers' right to conduct credit assessment – conditions for pre-payment and security are regulated by the general terms of agreement.
The supplier has the right to carry out a credit assessment of the end-user to decide on credit rating:

- *Security:* maximum 5 month estimated costs for supplying electricity
- *Pre-payment:* on a monthly or quarterly basis

Distribution of payment reminder – the supplier is not obliged to send reminder if the end-user has not paid the invoice at the due date, but they often do. The suppliers can choose to add a reminder fee of 100 DKK, if a reminder has been sent out. The supplier usually sends out three payment reminders before entering into debt collection.

Debt collection demand – if the end-user fails to pay the invoice at the due date or after reminders, further actions can be taken by engaging a debt collection firm. The fee for debt collection demand depends on the claim (e.g. the fee can be a maximum of 437 DKK on a 1.000 DKK claim, and a maximum of 1.375 DKK on 10.000 DKK claim). The letter of debt collection demand should clearly state:

- Name of the creditor
- How the debt/claim has occurred
- Capital, costs and interest separately stated

Enforcement service ("Fogedretten") – in case end-user doesn´t pay the debt collection firm within a reasonable amount of time the end-user will get served by "Fogedretten". The end-user will be called to a meeting where the supplier or a representative will be present together with an agent from "Fogedretten", which is aimed to result in an agreement about

repayments. If it is not possible to reach an agreement, “Fogedretten” will levy execution on the end-users belongings and hereby raise money to cover the claim.

Power shut down – the supplier has the right to cut the power if there is reasonable suspicion that the end-user cannot pay the invoices. An investigation has to be conducted in order to decide on whether there are any obstacles for a power shut down. The power can, for example, not be shut down for residential end-users if it could lead to personal injury.

4.3.2. Finland

Laws and regulation in Finland: the Finnish billing process for DSO and supplier is regulated by several laws; “Arvonlisälaki“, “sähkömarkkinalaki “, “perintälaki” and “kuluttajasuojalaki”. These laws regulate VAT, invoice information, electricity trade, debt collection and consumer legal protection. In addition, the Finnish DSOs and suppliers apply the general electricity sales and delivery terms (SME 10 and STE 10) and general terms for network service (VPE2010) recommended by Energiateollisuus Ry in the billing process.

Stakeholders in the billing process are: End-users, DSOs or suppliers, debt collection firms, enforcement services and court instances.

Suppliers’ and DSOs’ right to conduct credit assessments – conditions for pre-payment and security are given in the general terms of SME 10 and STE 10.

- DSO or supplier is entitled to request for security or pre-payment from end-user if they have not fulfilled their payment responsibilities according to electricity sales or delivery contract in question or other contracts
- Supplier and DSO can request moderate security from end-user when making the contract or during the contract period if there is sufficient reason for pre-payment request. Weighty reasons include negligence of payments to supplier or DSO that has led to delivery interruption or payment failure markings in credit report indicates incapacity to pay.
- The pre-payment can be at maximum 4 months unless other agreement is made

Distribution of payment reminder – a payment reminder could be sent to the end-user (minimum 14 days after the due date), given that an invoice for the receivable was sent to the end-user minimum 14 days before the due date. According to good practices the creditor should send at least one or two payment reminders before submitting the invoice to a debt collection firm or debt recovery. The payment reminder should contain the following information:

- the creditor’s name and address
- grounds for the receivable, e.g. total sum of the invoice
- payment address and due date
- information on whom must be contacted if the debtor has any questions or remarks

The last payment reminder must include information on the consequences of failing to pay the receivable, e.g. notification that the receivable will be transferred to a debt collection firm.

Debt collection demand – if the end-user doesn’t pay upon reminders, the claim can be transferred to debt collection (this is the usual process if the DSO or supplier do not want to solve the debt juridical ways directly). Professional debt collection is business subject to a

permit in Finland. Corporations practicing debt collection must - apart from specific exceptions - be registered by Regional State Administrative Agency.

The debt collection firm must send a demand for payment to the debtor in writing, which should contain the following information:

- the name of the creditor and the assigned enforcement service, their address and telephone number
- grounds for the receivable: the obligation, liability or agreement on which the receivable is based must be specified in sufficient detail
- information about the receivable in such a manner that the capital, interest, interest on arrears, debt collection expenses and their total sum are specified
- the payment recipient, method of payment and payment address
- the debtor's opportunity for submitting remarks on the amount and basis of the receivable and the due date by which the receivable must be paid
- the party to whom remarks must be submitted

In connection to debt collection power shut down can be initiated if the end-user does not respond to the debt collector after the first payment request. Before power shut down the end-user is warned in writing. End-users can negotiate payment arrangements after receiving shut down warning.

Enforcement service: If the payment is still unpaid after being transferred to debt collection, the debt collector applies for an obligation to pay in juridical ways. The local court informs the debtor of the summons. If the recipient does not react to the summons within 14 days, the local court transfers the case to the enforcement service. If the debtor disputes the summons the local court will investigate the validity of dispute. Enforcement service informs debtor of the execution after the court decision. It takes approximately 1,5-3 months to transfer the debt to the enforcement service after it has been transferred to debt collection. Enforcement service fees vary according to the amount of debt, varying from 2,5-250 EUR + interest per payment event. If the enforcement service, creditor and end-user cannot come to an agreement, the enforcement service levies an execution on the end-user's belongings and thereby raises money to cover the claim.

Power shut down: power shut down is case specific and varies from 5 weeks to 4 months after the payment has started to fall due. The power can be shut down at the earliest six week after due date of the payment reminder. The supplier or DSO is entitled to shut down the power when the end-user has substantially neglected their payment and contract terms and has not informed the vendor any justification for negligence. If the debtor does not correct the violation of contract after receiving request for payment, the end-user is warned in writing of power shut down and the date of the shut down at the latest two weeks beforehand. For residential end-users the power cannot be shut down unless the debt does not exceed 200 EUR or payment is delayed over 3 month. The power cannot be shut down between October and April regardless of payment delays in residences where heating is depending on power supply unless the delay of payment is over 4 months.

Clarification – DSO and Suppliers can themselves send out payment reminders and power shut down warning. Enforcement service does not have to be engaged before power can be shut down.

4.3.3. Norway

Laws and regulation in the billing process: the Norwegian billing process for suppliers is not regulated beyond general requirements. DSOs are regulated by the authorities and in cases of combined billing – suppliers fall under the same regulations. General requirements that apply to all billing processes are regulated by “Foretaksregisterloven”, “Bokføringsloven” and “Inkassoloven”

Stakeholders in the billing process: enforcement services, debt collection firms, end-users, DSOs or suppliers and court instances.

Suppliers’ and DSOs’ right to conduct credit assessment: The suppliers and DSOs have the right to conduct a credit assessment on end-users to decide on credit rating. There are no rules or regulations concerning the practice, which vary widely among different suppliers and DSOs. However, the market consensus is to use of a general credit report provided by an external credit firm in addition to the firm’s own credit history for the specific end-user. In cases where costumers are not creditworthy, arrangements could in some cases be made for pre-payment agreements:

- Pre-payment / security agreements normally for up to 4 months for businesses
- Prepaid accounts could be arranged for private end-users on a case-by-case basis

Distribution of payment reminder: DSOs and suppliers are not obliged to send reminder if the end-user has not paid the invoice, but they often do. The end-user has to pay a reminder fee of 61 NOK (1/10 of current rate for debt collection, which in 2011 was 610 NOK) if a reminder is sent out 14 days after the original due date. As many reminders as desirable can be sent. However, the number of reminder fees that can be charged is limited upwards to two.

Debt collection demand: if the end-user does not pay within the invoice due date or after reminders, further actions can be taken. A debt collection notice will be sent and the sender can demand a debt collection notice fee on the same terms as the payment reminder. A debt collection notice fee is limited upwards to 1/10 of current rate. The debt collection notice should clearly state the reason for and amount of the claim. Before any legal action can be taken by the debt collection firm a payment request should be sent to the end-user. A payment request fee could be charged, such a fee is limited upwards to 3/10 of current rate for debt collection.

The payment request should include:

- Name of the creditors
- How the debt/claim has occurred
- Amount claimed, capital, fees and interest separately stated
- Interest rate and elapsed time for calculated interest
- The consequences of not paying,(*among them legal enforcement of the monetary claim)
- The end-users right for proceedings of the Tribunal ”Nemdsbehandling”

The debtor is given 14 days to either pay the creditors or raise objections. In case the end-user does not pay the debt collection firm, within 14 days of the payment request notice, the debt collection firm should send a separate payment request stating the legal consequences, if this was not done in the first notice.

Enforcement service: in case end-user does not pay the debt collection firm within 14 days of the notice from the debt collection firm (and the notice stating the legal consequences of not paying) the end-user will get served by the law enforcement services. The legal succession can only take place within 6 months of payment request notice. In cases where this is not initiated within 6 months a new payment request notice has to be sent. If the enforcement service, creditor and end-user cannot come to an agreement, the enforcement service levies execution on the end-user's belongings and thereby raises money to cover the claim.

Power shut down: only DSOs can shut down the power supply. The end-user is given a warning, which gives him/her 4 weeks to settle the debt to his/her creditors. An investigation has to be conducted in order to decide if there are any obstacles for a power shut down. The power can, for example, not be shut down for residential end-users if it could lead to personal injury.

4.3.4. Sweden

Laws and regulation in Sweden: the Swedish billing process for DSOs and suppliers is regulated by e.g. "Ellagen" and "Elförordningen". General requirements that apply to all billing processes are regulated by "Aktiebolagslagen", "bokföringslagen" and "mervärdesskattelagen".

Stakeholders in the process are: enforcement services, debt collection firms, end-users, DSOs or suppliers and court instances.

Suppliers' and DSOs' right to conduct credit assessment – conditions for pre-payment and security are regulated by the general terms of agreement.
The supplier has the right to conduct a credit assessment on end-users to decide on credit rating:

- *Security:* max. four months calculated costs for supplying electricity for consumers and six months for businesses.
- *Pre-payment:* max. six months calculated costs for supplying electricity for consumers and six months for businesses.

The DSO has the right to conduct a credit assessment on end-users to decide on credit rating:

- *Security:* max. four months calculated costs for distributing electricity for consumers and six months for businesses.
- *Pre-payment:* max. six months calculated costs for distributing electricity for consumers and six months for businesses.

- ***Distribution of payment reminders –***DSOs and the suppliers are not obliged to send reminders if the end-user has not paid the invoice, but they often do. The end-user has to pay a reminder fee of 50 SEK if a reminder has been sent out. It is only reasonable to send out one payment reminder.

Debt collection demand – if the end-user does not pay within the due date or after a reminder further actions can be taken, i.e. engaging a debt collection demand. The fee for debt collection demand is 160 SEK per debt collection demand letter + interest. A maximum of four debt collection demands are allowed – usually debt collection firms use three letters of debt collection demand. The letter of debt collection demand should clearly state:

- Name of the creditor
- How the debt/claim has occurred

- ► Capital, costs and interest separately stated
- ► Included interest, interest rate and elapsed time for calculated interest
- ► Deadline for payment

On what grounds the interest is calculated should clearly be stated if the interest rate exceeds the reference interest rate + eight percentage points (stated in ”Räntelagen”).

Special investigation – in order to confirm whether or not the end-user will be able to pay the invoice a special investigation is in some cases conducted in connection to a debt collection demand. The fee for a special investigation is approximately 150 SEK.

Enforcement service (“Kronofogden“) – in case the end-user does not pay the debt collection firm within reasonable amount of time (no less than 8 days per letter of debt collection demand), the end-user will get served by “Kronofogden” through e.g. returned notice of delivery, personnel from “Kronofogden”, private serving company, special serving with a legal person or part serving. In most cases a returned notice of delivery is used. If an end-user is served by “Kronofogden” the social welfare board will be informed as well.

The end-user has 10 days to object the enforcement service decision (usually more than 10 days if the defendant is living abroad). If the end-user does not get back to “Kronofogden” within 10 days – a decision upon request is made. If the end-user opposes the decision – the case will be handed over to court. If the enforcement service, creditor and end-user cannot come to an agreement, the enforcement service levies execution on the end-user’s belongings and thereby raises money to cover the claim.

Power shut down – the end-user is given an additional 3 week extension of time for payment to “Kronofogden”, after which the DSO has the right to cut the power if the end-user has not paid its debt to the creditors. An investigation has to be conducted in order to decide on if there are any obstacles for power shut down. The power can, for example, not be shut down for residential end-users if it could lead to personal injury. It is also possible for the social welfare board to take over the liability for payment from the end-user. Suppliers and DSOs have in a many cases stated direction on the process of shutting down the power in the general terms and conditions in the agreement with the customer. If the power is disconnected, the end use will have to pay for all costs related to the power shot down, and potential reconnection.

4.4. Ernst & Young perspective

There are differences between the Nordic countries regarding national credit risk solution and the billing process. Some of these differences are:

Credit assessment: the right to, and the praxis of conducting, credit assessments vary between the Nordic countries and between companies. The right to demand, as well as the amount, of pre-payment from end-users is also varies.

Payment reminder: the obligation of distributing, the number of days before distributing payment reminders, the fee for and what is stated in the payment reminder varies between the Nordic countries, as well as between the companies.

Debt collection demand: debt collection process varies between the Nordic countries when it comes to:

- ► Fee for debt collection
- ► Number of days before debt collection
- ► Number of letters of debt collection demand

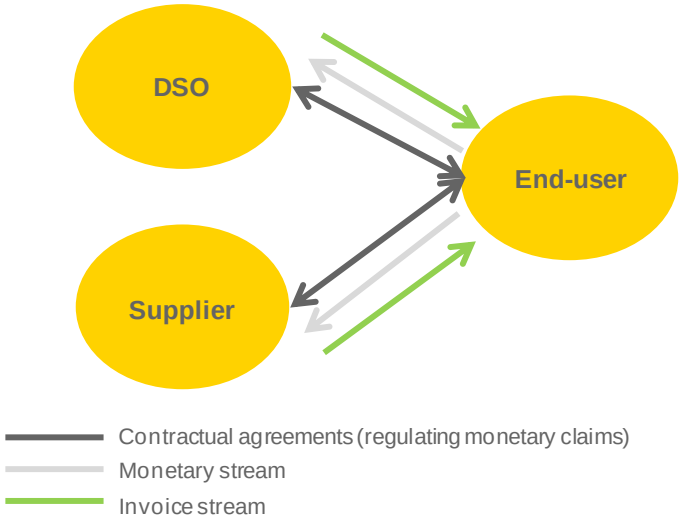
- What is stated in letters of debt collection demand
- Number of days before handing the errand over to enforcement agency

Enforcement service: the process and responsibility of the enforcement service varies somewhat between the Nordic countries. It is, however, relatively aligned between the Nordic countries.

Power shut down: when power shutdown can be initiated varies between the Nordic countries.

To the extent that these variables need to be harmonized is dependent on the design of the future billing regime. However, they need to be considered for any service provider currently entering the electricity market in the Nordics.

5. Current billing regime



9 Current billing regime

5.1. Description of current billing regime

In the current billing scenario, the DSO and supplier are each responsible for monitoring due dates, as well as initiating reminders, debt collection and enforcement services on their claims.

The End-user receives two separate invoices and is in contact with both DSO and supplier regarding issues and questions connected to the billing process.

There are two contractual agreements regulating monetary claim – one between DSO and end-user and one between supplier and end-user.

There are two separate invoice streams: one invoice stream between DSO and end-user and one between supplier and end-user. In the current billing regime, both DSO and supplier have their own billing processes. In case the DSO and supplier are within the same group, only one invoice is sent to the end-user covering both power distribution and supply.

There are two separate monetary streams: one between DSO and end-user and one between supplier and end-user.

5.2. Identified credit risk

In the current billing regime the following credit risks have been identified:

- ***DSO carries a credit risk if the end-user fails to pay or only pays part of the claim:*** if the end-user does not pay or only pays part of the distribution invoice a credit risk occurs for the DSO
- ***The supplier carries a credit risk if end-user does not pay or only pays part of the claim:*** if the end-user does not pay or only pays part of the supply invoice a credit risk occurs for the supplier

- ***Credit risk for supplier/DSO due to money outstanding to tax authorities:*** a credit risk occurs for supplier/DSO due to money outstanding and the obligation to pay energy tax and VAT to tax authorities. The stakeholder carrying the greatest risk differs between the Nordic countries because of differences in tax regulation.
- ***Credit risk for the TSO due to money outstanding to DSO***

5.3. Ernst & Young perspective

In the current billing regime the credit risks are divided between the stakeholders. Supplier and DSO are each responsible for the monetary claim of the supply and the distribution. There is a well defined stakeholder relationship and a common understanding of which stakeholder is responsible for what in the billing and debt collection process.

In the current billing regime approximately 4% of the invoices enter the process of debt collection, which suggests that the credit risk is relatively diminutive. The credit losses vary between the Nordic countries and between companies, but they are generally well below 1%. In Sweden, the credit losses amount to approximately 0,1%, taking the entire market (not only the electricity market) into consideration.

Combined billing is frequently used in the Nordic countries, when the DSO and supplier are in the same group of companies. Laws and regulation concerning combined billing varies between the countries. Combined billing is for example not legal in general legislation. A special regulation has however been set up and combined billing is an industry praxis in current billing scenario.

6. Basic principles in future billing regime

6.1. Chapter introduction

A total of 6 scenarios describing a possible future billing regime has been recognized. All of these scenarios are separately analyzed, covering the following areas:

- ► High level description of future billing scenario
- ► Identified credit risks
- ► Ernst & Young perspective

Based on desktop research, Ernst & Young brought forward 5 (which was later complemented) possible scenarios for a future billing regime all in line with the proposed mandatory supplier centric model. These 5 scenarios were initially presented to NordREG to take into account their point of view. These scenarios served as a starting point for further analysis and as basis of discussion during interviews. The scenarios are described in a simplified way with one DSO and one supplier, but in a future Nordic billing regime there will be a large amount of DSOs and suppliers on the market increasing the complexity.

The approach for the analysis of which of the scenarios is the most viable takes into consideration the credit risk perspective and the requirements stated in *Consideration of alternative billing regimes for the common Nordic end-user market* (Vaasa ETT) which are:

- ► Customer friendliness
- ► Well-functioning common market
- ► Improved competition
- ► Improved efficiency
- ► Compliance with EU regulation and development
- ► Neutrality of DSOs

During the interviews conducted with stakeholders in the electricity market, the initial 5 scenarios were discussed and evaluated, and all stakeholders gave their input on whether the scenario would be a viable alternative for a future billing regime. The stakeholders were also given the opportunity to propose other scenarios that could distribute risks in a more appropriate way while at the same time taking into account the proposed six requirements from *Consideration of alternative billing regimes for the common Nordic end-user market (*Vaasa ETT). During the research and interview phase one additional scenario was identified as possible, resulting in a total number of six different scenarios to be further evaluated in the report.

6.2. Characteristics of the future billing regime as described by NordREG

From an end-user perspective the basics of the future billing regime is that the end-user will receive one invoice that should include both supplier claims and DSO claims. In the billing regime there should be one single point of contact regarding invoice questions for the end-user – which will be the supplier. The DSO is in contact with the end-user in matters regarding provided service, for example new end-user installation and when setting up/changing agreements. Consequently, the DSO is not actively involved in matters regarding the invoice.

The future billing regime could, but does not have to, be based on the establishment of national data hub – where DSO and supplier could provide/gain access to metering data.

The role of DSOs:

- ► DSO contact information should be clearly identified on the invoice
- ► DSOs are able to contact the end-user to explain their role
- ► (In case of data hub) DSOs would each have contract with the national data hub in the countries they are operating in. DSOs not following obligations could be locked out temporarily or permanently from the data hub.

The role of supplier:

- ► Suppliers provide all billing related end-user services to the end-user
- ► (In case of data hub) Suppliers would each have contract with the national data hub in the countries they are operating in. Suppliers not following obligations could be locked out temporarily or permanently from the data hub.

6.3. High level description of recognized possible scenarios

6.3.1. Introduction

6.3.1.1 Collection of energy taxes and VAT in the scenarios

Possible tax issues in a common Nordic market will not be analyzed in-depth in this report[4]. However, it is important to highlight the major deviations between the Nordic countries. The most important deviation is where the responsibility for energy tax resides. As shown in the table below, Sweden does not have the same distribution of responsibility as in the other Nordic countries.

In all of the scenarios described in this report the stakeholder responsible for the collection of energy taxes and VAT is static compared to the current billing regime.

Country	Stakeholder	Tax payment responsibility energy tax	Tax payment responsibility VAT	Different fee, payment responsibility
Denmark	DSO	X (electricity tax)	X	X (energy saving allowance, electricity distribution allowance, electricity saving allowance, electricity additional fee , Public service obligation fee)
	Supplier		X	N/A
Finland	DSO	X (energy tax and stockpile fee)	X	N/A
	Supplier		X	N/A
Norway	DSO	X	X	X (fee to Enova)
	Supplier		X	X (green certificate)
Sweden	DSO		X	X (electricity safety fee, emergency fee, supervision fee)
	Supplier	X	X	X (green certificate)

10 Stakeholder responsibility energy taxes and VAT

6.3.1.2 Identified regulatory constraints

Laws and regulations concerning national credit risk solutions, such as debt collection and enforcement services etc., must be based on the country in which the end-user is located. There are currently some differences between the Nordic countries and in a future common model it would be convenient to have these laws and regulations harmonized. However, this is not a constraint preventing the implementation of a combined billing model.

Ernst & Young has identified two country-specific regulations that need to be addressed before a combined billing model can be implemented. In Denmark, according to Energinet.dk´s interpretation of Danish VAT act, section 52, it is not legal for the supplier to print and send out an invoice in the name of and for the account of the DSO without undertaking the claim

[4] Tax issues in a combined Nordic billing model are further analyzed in separate report compiled by Ernst & Young TAX, 2012

toward the end-user[5]. Since this regulation has a major impact on the possibility to combine billing in the future the Danish VAT act, section 52 has been reviewed by Ernst & Young representatives in Denmark. Ernst & Young's conclusion is that Energinet.dk´s interpretation of the VAT act is incorrect, and that it is possible for a Danish supplier to print and send out an invoice in the name of and for the account of the DSO, which is also the case for the other Nordic countries.

In Norway the legislations prevents combined billing. In Norway it is legal for a supplier to invoice a DSO's claim in the name of and for the account of the DSO. However, there has to be two separate invoice documents sent to the customer, i.e. both invoices cannot be printed on the same paper. The legislation in Norway also prevents a supplier to create a single invoice in a scenario were the DSO has sold his receivables to the supplier. (Single invoicing is only legal if the DSO is isolated from the end user, and has a role as subcontractor to the supplier, but this is not in line with the proposed roles and responsibilities in the future billing regime. Therefore, no such scenario has been analyzed in this report).

6.3.1.3 Billing frequency and payment reminders

A mandatory billing frequency between the DSO/supplier and the end-user should not be implemented, since this could have a negative effect on the DSO's/supplier's competitiveness in the market. The billing frequency should instead be agreed upon between individual DSOs/suppliers and the end-user on a case by case basis, as is done today where different billing frequencies for the power distribution and supply invoice could occur.

All of the above also applies for the payment reminder process. Hence, this should stay as in current billing regime.

In a scenario where the DSO and/or supplier sells his receivables to another party, such as the supplier or a third party, a mandatory, dispositive, billing frequency should be set up. Since circumstances for billing frequency of credit are dependent on specific scenarios where no general rule can be proposed.

6.3.1.4 Days of credit

To harmonize the end user experience and avoid confusion in a future billing model – where it will be more common for suppliers to establish a business in a new country – it would be convenient to regulate days of credit from supplier/DSO to end-user. This could be done by implementing an industry standard that applies to all Nordic countries.

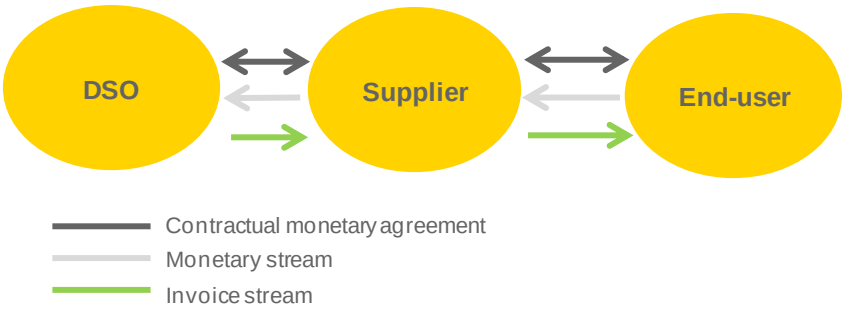
In a scenario where the DSO and/or supplier sells his receivables to another party, such as the supplier or a third party a mandatory, dispositive, setup for days of credit should be set up. Since circumstances for days of credit are dependent on specific scenarios, no general rule can be proposed.

[5] Possibilities of improving single invoicing by using the DataHub, Energinet.dk 2010

6.3.2. Scenario 1 – DSO transfer debt to the supplier

6.3.2.1 Description

In this billing scenario the DSO invoices his claim to the supplier and the supplier invoices the total claim to the end-user, i.e. the DSO sells his receivables to the supplier and the end-user is in debt only to the supplier. In this scenario, the DSO is still responsible for services provided to the end-user, with contractual agreement regulating monetary claim setup between the end-user and the supplier/DSO. In addition, there should be a contractual agreement between the DSO and the supplier regulating the claim for receivables sold by the DSOs to the supplier. This scenario suggests that both DSO and supplier will have their own billing process.



11 Future billing regime scenario 1

6.3.2.2 Scenario setup and responsibilities

- Contractual agreements regulating monetary claim are set up between both DSO and supplier and between supplier/DSO and end-user
- The end-user is in debt only to the supplier
- There are two separate invoice streams: one between DSO and supplier and one between supplier and end-user
- The end-user will receive one electricity invoice covering both power distribution and supply from the supplier. The supplier will receive one invoice covering power distribution (sold receivables) from the DSO
- There are two separate monetary streams: one between DSO and supplier and one between supplier and end-user
- Supplier is responsible for due date monitoring and debt collection for the total claim against the end-user
- DSO is responsible for due date monitoring and debt collection for the distribution claim (sold receivables) against the supplier

The billing frequency should be monthly backwards between DSOs and suppliers but dispositive, i.e. mandatory if no other agreement has been made between the DSO and the supplier. The billing frequency between supplier and end-users should not be regulated since this could affect the suppliers' competitiveness in an open market.

Days of credit from supplier to the end-user should not be regulated. Days of credit given between the supplier and the end-user should be decided upon in an agreement between the specific supplier and the end-user. Days of credit given by DSO to supplier for payment of their sold receivables should give the supplier reasonable time to invoice their claims against

the end-user to reduce the negative cash-flow effect for supplier in the model. The number of credit days used in this scenario needs to be further investigated.

In this scenario it is important to have contractual agreements in place in order to regulate claim handling and responsibility:

- ***DSO and supplier***
- ***Supplier and end-user***
- ***DSO and end-user***

It is important to point out that if separate agreements were to be constructed between all DSOs and suppliers, it would become a very complex and costly procedure. Common standard agreements should be put in place to reduce administration costs for all stakeholders.

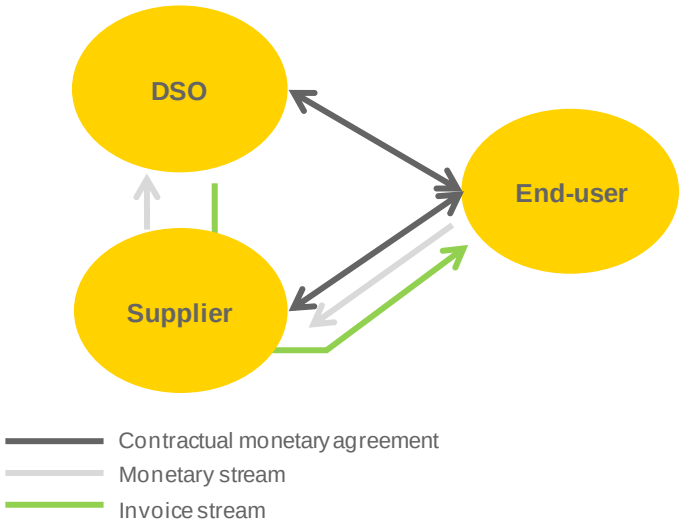
6.3.3. Scenario 2 – End-user in debt both to the supplier and DSO

6.3.3.1 Description

Supplier invoices the total claim, including the DSO's claim in the name of and for the account of the DSO. The end-user is in debt both to the DSO and the supplier.

In this billing scenario the supplier receives all necessary invoice data from the DSO and adds this information as a separate part of their own invoice to the end-user, i.e. one invoice is sent to the end-user. However, from a legal perspective this is actually two separate invoices on one piece of paper, including all information necessary to fulfill legal requirements of the invoice.

The end-user's payment is settled on bank account owned by the supplier, and the supplier is responsible to pass forward the DSO's part of the payment.



12 Future billing regime scenario 2

6.3.3.2 Scenario setup and responsibilities

- Contractual agreements regulating monetary claim is set up between both DSO and end-user and between supplier and end-user. The end-user is in debt both to the supplier and the DSO.
- DSO is responsible for providing accurate invoice data and fulfilling all legal requirements of an invoice to the supplier
- The supplier is responsible for adding the DSO data, in the name of and for the account of the DSO, onto the invoice
- The supplier is responsible for printing and sending the combined invoice to the end-user. In this scenario, the end-user will receive one piece of paper with data that fulfills legal requirements to be treated as two separate invoices, covering the claim for power distribution as well as supply.
- The supplier is responsible for the monetary settlement with the end-user and to accurately pass forward the DSO's claim against the end-user. In this scenario, there are two separate monetary streams: one between DSO and supplier and one between supplier and end-user.

- The supplier is responsible for due date monitoring of the total claim against the end-user. Debt collection will be handled separately by DSO and supplier
- This scenario could be further developed through the introduction of a client account, in order to mitigate credit risks from insolvent suppliers. In scenario 6 this scenario has been further developed with both client accounts and an invoice print shop.

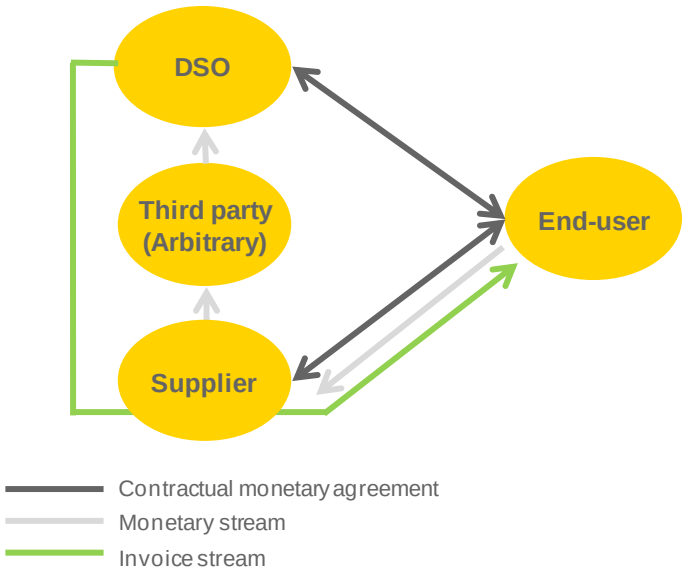
6.3.4. Scenario 3 – End-user is in debt both to supplier and DSO. An arbitrary third party is setup in order to protect DSO against insolvent suppliers

6.3.4.1 Description

This scenario is based upon Scenario 2, but with an arbitrary third party between DSO and supplier in order to equally share bad debts between all DSOs, i.e. to protect single DSOs against insolvent suppliers.

This scenario suggests the introduction of a third party, which will be placed between DSO and supplier. The third party is an intermediary in the monetary stream between supplier and DSO. The role of the third party is primarily to create security for an individual DSO against insolvent suppliers. The third party will proportionally distribute the credit losses connected to insolvent or rouge suppliers, among all DSOs connected to the third party.

The use of the third party should be a voluntary solution and is perhaps more appealing to smaller DSOs or DSOs without the financial strength to take on the risk of insolvent suppliers.



13 Future billing regime scenario 3

6.3.4.2 Scenario setup and responsibilities

Same setup and responsibilities as in scenario 2, with some amendments:

- The third party is responsible for accurately passing forward the monetary settlement going from the supplier to the DSO
- The third party is responsible for distributing credit losses proportionally between connected DSOs if a supplier goes bankrupt or do not pass forward the DSOs claim accurately
- There is one additional monetary stream compared to Scenario 2. The monetary streams in this scenario are: one between end-user and supplier, one between supplier and third party and one between third party and DSO.

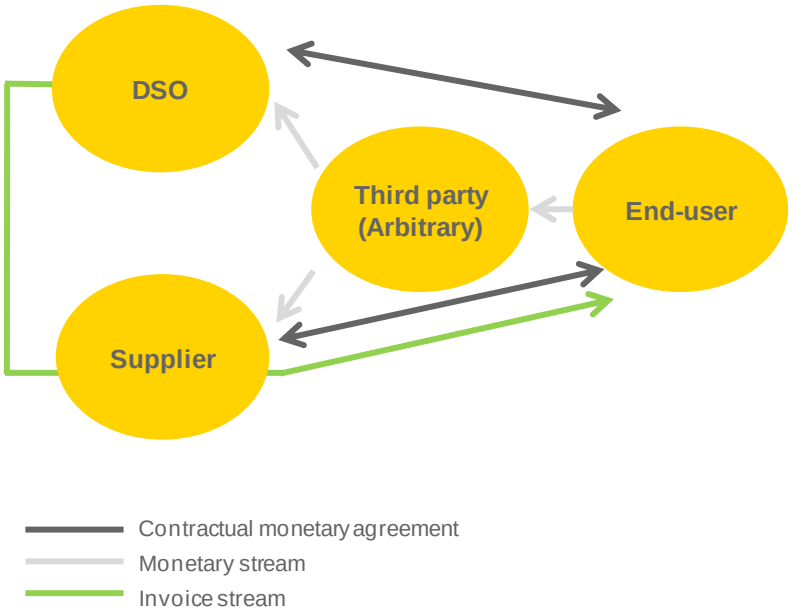
6.3.5. Scenario 4 – Arbitrary third party in order to split monetary stream between DSO and supplier

6.3.5.1 Description

This scenario is based upon scenario 2 with an arbitrary third party assigned to distribute monetary settlements accurately between end-users and DSOs/suppliers.

This scenario suggests the introduction of a non-profit third party – financed by all connected DSOs and suppliers. The third party is placed between the end-user and DSO/supplier and acts as an intermediary in the monetary stream between the end-users and DSOs/suppliers. The third party's role is to accurately distribute the monetary settlements between the end-user and the DSO/supplier.

The use of the third party is voluntary from a DSO perspective. If the DSO chooses to use a third party the supplier are obliged to accept.



14 Future billing regime scenario 4

6.3.5.2 Scenario setup and responsibilities

Same setup and responsibilities as in scenario 2, with some amendments:

- The third party is responsible for acting as an independent intermediary in the monetary stream between DSO, suppliers and end-user. The third party is splitting end-user payment accurately between DSO and supplier.
- The third party is supervisor of the client bank account where all end-user payments are settled.
- The third party keeps track of all end-user settlements, and passes information forward to both supplier and DSO.
- There are several separate monetary streams: one between DSO and third party, one between supplier and third party and one between third party and end-user.

6.3.6. *Scenario 5 – End-user debt is transferred from DSO and supplier to financial third party*

6.3.6.1 Description

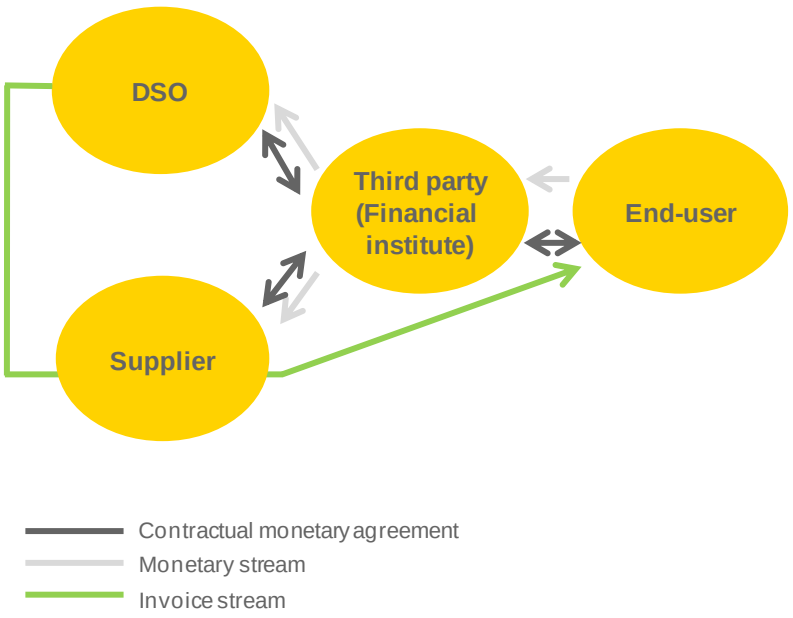
In this billing scenario, the end-user has a contractual agreement regulating monetary claims with both the DSO and the supplier.

The supplier receives all necessary invoice data from the DSO and adds this information, in the name of and for the account of the DSO, as a separate part of their own invoice to the end-user, i.e. one invoice is sent to the end-user. However, from a legal perspective this is actually two separate invoices on one piece of paper, including all information necessary to fulfill legal requirements of the invoice.

At the same moment as the end-user invoice is sent, both DSO and supplier sell their receivables to a financial third party and the end-user is in the end only in debt to the third party.

The third party assumes the credit risk and handles the demand process, allowing DSO and supplier to concentrate on core business.

The third party monitor due date and initiate debt collection



15 Future billing regime scenario 5

6.3.6.2 Scenario setup and responsibilities

- Contractual agreements regulating monetary claim is set up between both the DSO and the end-user, as well as between the supplier and the end-user
- Contractual agreement between DSO/supplier regulating the transfer of receivables to third party
- The end-user is in debt only to the third party
- DSO is responsible for providing accurate invoice data, fulfilling all legal requirements in one invoice to the supplier

- The supplier is responsible for adding the DSO data, in the name of and for the account of the DSO, into their own invoice
- The supplier is responsible for printing and sending the total invoice to the end-user. In this scenario the end-user will receive one piece of paper with data that fulfills legal requirements to be treated as two separate invoices, covering both the claim for power distribution and supply
- The third party is responsible for the monetary settlement with the end-user
- The third party is responsible to settle DSOs and supplier claims for sold receivables
- The third party is responsible for due date monitoring and debt collection of the total claim against the end-user
- The third party is a financial institute or equivalent. Therefore, DSOs and suppliers do not carry credit risk if the end-user fails to pay the distribution or supply invoice (as debt has been transferred from DSO and supplier to third party). However, the third party might charge a premium for carrying the credit risk and administration.
- There are several separate monetary streams: one between DSO and third party, one between supplier and third party and one between third party and end-user
- The use of the third party is an industry voluntary solution and not a mandatory solution that will be regulated by law

6.3.7. Scenario 6 – Third party / supplier handles client accounts and print shop

6.3.7.1 Description

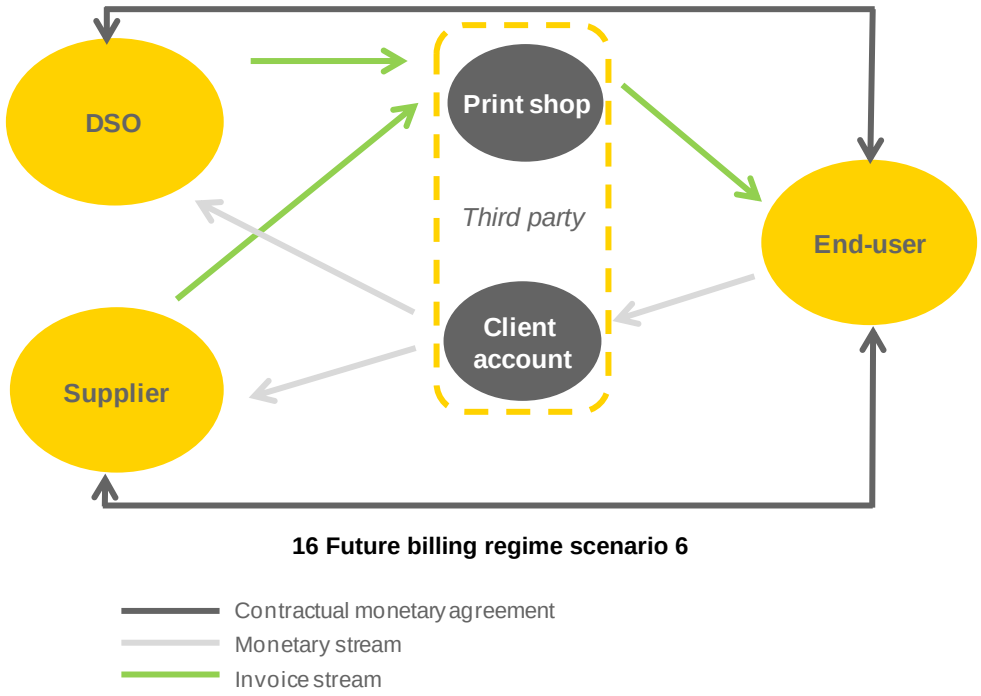
This scenario is based upon scenario 2 but further developed, with client accounts and an invoice print shop.

A common print shop invoices the total claim, in the name of and for the account of the both the DSO and the supplier. The end-user is in debt both to the DSO and the supplier.

In this billing scenario, the print shop receives all necessary invoice data from both the DSO and the supplier and adds this information as separated parts of one invoice to the end-user, i.e. one invoice is sent to the end-user. However,from a legal perspective this is actually two separate invoices on one piece of paper, including all information necessary to fulfill legal requirements of the invoice.

The end-user's payment is settled in a bank account controlled by a centralized arbitrary third party, who is responsible for accurately passing forward the payments to the DSO and the supplier.

This solution could have an efficiency advantage over Scenario 2, since the DSO and the supplier do not need to set up individual data communications between each other. Instead, they only need to set up two data communication lines with the print shop and with the arbitrary third party managing the bank settlements.



16 Future billing regime scenario 6

6.3.7.2 Scenario setup and responsibilities

- Contractual agreements regulating monetary claims are setup between both DSOs and end-users and between suppliers and end-users
- The end-user is in debt both to the supplier and the DSO
- The DSO/supplier is responsible for providing accurate invoice data, fulfilling all legal requirements in one invoice to the print shop

- The print shop is responsible for adding the DSO/supplier data to the invoice, in the name of and for the account of the DSO/supplier
- The print shop is responsible for printing and sending the total invoice to the end-user. In this scenario the end-user will receive one piece of paper with data that fulfills legal requirements to be treated as two separate invoices, covering the claim for both power distribution and supply
- The third party is responsible for the monetary settlement with the end-user and to accurately pass forward the DSO/supplier claim against the end-user. In this scenario there are three separate monetary streams: one between the DSO and the third party, one between the supplier and the third party, as well as one between the end-user and the third party.
- The third party is responsible for due date monitoring and sending reminders
- Debt collection will be handled separately by the DSO and the supplier
- In this proposed future billing scenario the end-user is in debt both to the supplier and the DSO

In this scenario it is important to have contractual agreements in place, in order to regulate claims handling and responsibility between:

- ***Supplier and end-user***
- ***DSO and end-user***
- ***Supplier and third party (Print shop and monetary settlement service provider)***
- ***DSO and third party (Print shop and monetary settlement service provider)***

Debt collection can become initiated after a predetermined period of time after the last payment reminder has been distributed and payment from end-user has not arrived. Number of days before debt collection could be decided by, for example regulators, since it would be convenient to harmonize this for the sake of power distribution and supply. If the invoice is only partially paid, the payment will be distributed to DSOs and suppliers in proportion of each stakeholder's claim.

The monetary settlement service provider is responsible for setting up client accounts. Trough client accounts, payments will be distributed from the end-users to DSOs and suppliers.

Third party responsibility:

- Monitor payments and due dates
- Receive and distribute payment accordingly

Print shop responsibility:

- Invoice end-user in the name of and for the account of both DSO and supplier
- Issues reminders in the name of and for the account of both DSO and supplier
- Invoice layout based on supplier specification
- Include all data to fulfill legal requirements

6.3.8. *Identified credit risk in scenarios*

The credit risks in the future billing regime that have been identified in this chapter are summarized below. Credit risks for DSOs and suppliers have been mapped against each scenario.

Credit risk	Scenario					
	1	2	3	4	5	6
Supplier						
The supplier carries a credit risk if end-user does not pay or only pays part of the claim	X	X	X	X		X
Credit risk for supplier due to money outstanding to tax authorities	X	X	X	X		X
Supplier is responsible for both due date monitoring and debt collection of distribution and supply (and Tax) from end-user	X					
Differences in billing cycle between DSO and supplier could increase credit risk for supplier	X					
Number of credit days between DSO and supplier affects the credit risk for the supplier	X					
DSO (and TSO)						
DSO carries a credit risk if the end-user fails to pay or only pays part of the claim		X	X	X		X
DSO carries a credit risk if the supplier is responsible for the monetary stream from the customer and the supplier fails to pass forward- or only pass forward part of the DSOs claim			(X)			
Credit risk for DSO due to money outstanding to tax authorities		X	X	X		X
DSO carries a credit risk against individual suppliers	X					
Credit risk for the TSO due to money outstanding to DSO	X	X	X	X		X
Number of credit risk summarized	**7**	**5**	**6**	**5**	**0**	**5**

17 Credit risk in scenarios

- ***The supplier carries a credit risk if the end-user does not pay or only pays part of the claim:*** if the end-user does not pay or only pays part of the supply invoice a credit risk occurs for the supplier. (Present risk in current billing regime)
- ***Credit risk for supplier due to money outstanding to tax authorities:*** a credit risk occurs for supplier due to money outstanding to tax authorities and the obligation to pay energy tax and VAT (the situation varies between the countries).
- ***Supplier is responsible for both due date monitoring and debt collection of distribution and supply (and Tax) from end-user – therefore more capital is tied up for supplier:*** since supplier is responsible for both due date monitoring and debt collection of the distribution and supply invoice the supplier will have to carry a greater credit risk due to larger amounts of money outstanding to the end-user.
- ***Differences in billing cycle between DSO and supplier could increase credit risk for the supplier:*** differences in billing cycles between DSO and supplier create an increased credit risk, especially for the supplier. However, the stakeholder carrying the greatest credit risk changes depending on which billing frequency rules that apply.
- ***Number of credit days between DSO and supplier affects the credit risk for the supplier:*** number of credit days given by the DSO, as well as given to end-user by supplier, will affect the credit risk for the supplier.
- ***DSO carries a credit risk if the end-user fails to pay or only pays part of the claim:*** if the end-user does not pay or only pays part of the distribution invoice a credit risk occurs for the DSO.

- ***DSO carries a credit risk if the supplier is responsible for the monetary stream from the end-user and the supplier fails to pass forward- or only pass forward part of the DSOs claim:*** this credit risk occurs if a supplier becomes insolvent or if a rogue supplier enters the market.
- ***Credit risk for DSO due to money outstanding to tax authorities:*** a credit risk occurs for DSOs due to money outstanding to tax authorities and the obligation to pay energy tax and VAT (the situation varies between the countries). The credit risk increases because of the risk of market entry from insolvent suppliers.
- ***DSO carries a credit risk if the supplier is ineffective in the due date monitoring process:*** the DSO experiences an increased credit risk (cash flow risk) when awaiting payment from the supplier.
- ***DSO carries a credit risk against individual suppliers:*** the DSO experiences an increased credit risk when exposed to fewer debtors with higher amounts.
- ***Credit risk for the TSO due to money outstanding to DSO:*** this credit risk is, however, relatively unchanged from current billing scenario. The credit risk could increase due to a larger credit risk for DSOs because of insolvent suppliers.

6.3.9. Identified credit risk mitigations

This chapter describes general arrangements that could be implemented in order to mitigate the credit risk in the future billing regime. These credit risk mitigation strategies are not scenario specific and could be seen as additional risk solutions that could be added to future billing scenarios.

6.3.9.1 Billing frequency

As suggested in *Consideration of alternative billing regimes for the common Nordic end-user market* (Vaasa ETT), it should be compulsory for the DSO to invoice the supplier monthly in order to mitigate risk. The billing frequency in the current billing regime varies for end-users, where the variation depends on the agreement between the DSO/supplier and the end-user. In the future billing regime, the positive effects of setting up an end-user specific billing frequency might decrease from a supplier perspective. This is due to the fact that if the DSO has an agreement with a monthly billing frequency, the supplier will have to send out an invoice to end-users, even though the supplier has agreed on another billing frequency for the power supply.

A mandatory monthly billing frequency would result in lower credit risk due to fewer outstanding claims, which is positive from a risk perspective. Monthly billing for the electricity market is also in line with other market practices, for example the telecom market. However, this would result in a higher gross amount of invoices compared with the current situation and therefore higher administrative costs. An additional downside connected to monthly billing is the possible competitive advantage that optional billing frequency might render, which diminishes with mandatory monthly billing. A change in billing frequency occurred recently in Norway when some suppliers implemented monthly billing for all end-users. This initiative initially led to some inconvenience for end-users with low consumption, but further on the end-user satisfaction grew. It is also important to point out that the development of smart metering and tariffs based on hourly consumption is an ongoing process in the Nordic countries. This will affect the implementation of a supplier centric model and the possibility for mitigation of credit risk. The conditions for even further increasing billing frequency could change and make it possible to work with even shorter billing periods, mitigating the credit risk further.

6.3.9.2 Days of credit

By increasing days of credit for suppliers to pay or transfer the money stream from end-user to DSO, the supplier's liquidity risk due to large amounts of money outstanding would be reduced. This is, however, an alternative that most stakeholders do not find attractive and the problem would instead be passed on to the DSO.

6.3.9.3 Professional credit management

In the future billing regime no restrictions, besides local laws and regulations, connected to usage of professional credit management have been identified. Hence, this should be allowed on a voluntary basis arranged by stakeholders on their own behalf.

For example, a DSO or supplier has the possibility to arrange for credit insurance, pre-payment or credit check on end-user or supplier. These solutions are, however, voluntary arrangements to mitigate credit risks.

Pre-payment is a good way to reduce credit risk appearing through insolvent end-users. This is also an arrangement that could be put in place between DSOs and suppliers, but it would be voluntary and regulated by contractual agreements between DSOs and suppliers. Norway has experienced problems with pre-payment in some cases, where there have been suppliers demanding pre-payment from end-users without delivering electricity, i.e. rouge suppliers. As a result,there has been discussion of prohibiting pre-payment in Norway that is currently being evaluated.

Credit insurance is an alternative that is currently in use to a great extent in the Nordic market. It could, however, be an alternative in the future billing regime, especially for protecting DSOs against insolvent or rogue suppliers.

6.3.9.4 Third party solution

In order to mitigate credit risk, primarily for the DSO, a third party could be involved in the billing process. Different arrangements for a third party solution are further analyzed in scenarios 3-6.

By letting an independent third party, either co-owned by DSOs and suppliers or financial institutes, handle the money stream and divide the payment between the DSO and supplier, the credit risk would be static compared to the current billing regime. The third party would, however, have to charge a fee to meet the administration cost and possibly a risk premium as well.

A number of issues could arise in connection to debt collection if a third party solution was to be implemented. Some questions need to be further investigated,for example:

- What happens if the claims against the end-user are not paid after due date or reminders?
- Who should be responsible for the debt collection process and which countries' laws and regulations would apply?

A consensus among interviewed stakeholders is that debt collection for both DSO and supplier claims should be managed by the supplier. However, this would lead to an increased workload for the supplier, and it also needs to be investigated further to ascertain whether or not this is allowed from a legal stand point, as the claim in some scenarios resides between the DSO and the end-user.

The main benefit of a third party solution would be a decreased risk for DSO, protecting it against rogue or insolvent suppliers. From a supplier perspective one benefit would be a re-

lieved administrative burden, since the third party would manage the split of payments between the supplier and the DSO.

6.3.9.5 Industry fund

By implementing an industry fund, the single DSO or supplier would not alone carry the entire credit risk in case of different incidents.

Examples of industry funds:

- ***Supplier industry fund:*** in order to mitigate the credit risk for the single supplier it could be arranged for an industry cooperation/fund, where all suppliers split the bad debt between each other by the end of the year. This would distribute the end-user risk between all suppliers in the long run, but not short-term liquidity problems that may arise from bad debts during the year. In order to solve the short term liquidity problems for suppliers, one would be to split the bad debt between each party monthly.
- ***DSO industry fund:*** in order to mitigate the credit risk for the single DSO it could be arranged for an industry cooperation/fund where all DSO split bad debt from insolvent or rouge suppliers between each other after a certain time period, e.g. on a yearly basis. This would equalize the supplier risks between all DSOs in the long run, but not the short-term liquidity problems that may arise from bad debts during the year. This arrangement is further analyzed in scenario 3.

The introduction of an industry fund would be complicated, with complex agreements and extensive administration required. The implementation and running expenses of an industry fund would also have to be considered in connection to this solution.

6.3.9.6 Strict market entry requirement for supplier

In the current billing regime there are practically no requirements on suppliers to enter the market. In order to mitigate the credit risk from insolvent or rogue suppliers, for example suppliers who cannot demonstrate sufficient cash flow, stability, trustworthiness or expertise would have to be strict market entry requirements for suppliers that could be implemented. It is, however, very important that the regulation does not hinder competitive entry for new market participants. Stakeholders generally find this idea appealing, but regulators must be very careful with regards to the kind of requirements that will be put in place. This kind of arrangement is appealing in theory, but a setup that actually works might be difficult to design.

In the case where a data hub is in place that regulates access to the hub, one arrangement could be to force suppliers and DSOs to follow rules in the future billing regime. In other words, bad behavior could initiate a lock-out from the data hub,preventing the supplier from continuing their business. In this way the data hub could work as a police man protecting the market from rogue suppliers.

6.3.9.7 Risk premium

A risk premium could be given to the stakeholder that has an increased risk. The purpose of the premium would be to match the increased risk by in the long run covering the stakeholders' bad debts. A risk premium is a good way to equalize the distribution of risk between stakeholders, however a prerequisite is that both parties reach an agreement. Firstly, they have to agree upon whether or not a risk has been transferred. Secondly, they have to agree upon the size/value of the risk. Since the parties involved are usually not neutral, this would

probably have to be regulated by a common industry standard. Setting up an industry standard could be complex, as the market is dynamic and stakeholders have different credit ratings, creating difficulties in agreeing on one standardized risk premium calculation designed to sort out a specific risk in specific a business relation.

6.3.9.8 Contractual agreement between stakeholders

As in the current billing regime, it will be very important to clarify the roles and responsibility of each stakeholder in any future regime. Therefore, the role of contractual agreements between stakeholders regulating claims, debts and if applicable money transfers will be of great importance.

6.3.9.9 Harmonization and speed up of shutdown process

In order to make evaluation of credit risks more transparent in the Nordics the process of disconnecting the end-users should be harmonized. To enable full competition between different participants, the market conditions in the different Nordic countries should be equal.

6.3.10. Mandatory or voluntary risk mitigation solutions

This chapter provides a discussion on whether risk mitigation solutions should be voluntary or mandatory. It is important to keep in mind that credit management and the different payment alternatives offered to end-users are important tools for suppliers to differentiate themselves in a competitive market. Therefore, it is important to strive for a high degree of voluntary solutions in the arrangements that are to be put in place to reduce credit risks, rather implementing mandatory solutions.

Mandatory arrangements could impede a completely open and competitive Nordic end-user market, where Nordic players are competing on the same conditions. In the table below, Ernst & Young summarizes the suggestions on whether credit risk arrangements should be mandatory or voluntary if implemented.

Arrangement	Mandatory solution	Voluntary solution
Billing frequency		
Monthly billing frequency between DSO and Supplier	Further investigation necessary	
Monthly billing frequency between Supplier and end-user		X
Monthly billing frequency between DSO and end-user		X
Days of credit		
30 days of credit for supplier to DSO	Further investigation necessary	
Extended days of credit for Supplier		X
Professional credit management		
Pre-payment by Supplier from end-user		X
Pre-payment by DSO from end-user		X
Pre-payment by DSO from Supplier		X
Credit check by Supplier on end-user		X
Credit check by DSO on end-user		X
Credit check by DSO on Supplier		X
Credit insurance by Supplier on end-user		X
Credit insurance by DSO on end-user		X
Third party solution		
Use of financial third party for monetary stream and collection		X
Use of arbitrary third party for monetary stream		X
Industry fund		
Supplier industry fund		X
DSO industry fund		X
Strict market entry requirement for supplier		
Strict data hub access requirements	X	
Strict requirements on supplier through licensing	X	
Risk premium		
Risk premium for supplier	X	
Risk premium for third party	X	
Contractual agreement		
Contractual monetary agreement between DSO and supplier	X	
Contractual monetary agreement between DSO and end-user	X	
Contractual monetary agreement between supplier and end-user	X	
Other activities in order to mitigate risk		
Maximum amount of days to end-user power shutdown	X	

18 Arrangements in order to mitigate risks and whether this should mandatory or voluntary

6.3.10.1 Analysis of identified credit risk mitigation

The billing cycle between the end-users and suppliers/DSOs should not be regulated. Different billing periods and payment alternatives are important tools for suppliers to differentiate themselves in the competition in an open market. Tighter billing frequency is an alternative to reduce credit risk both for DSOs and suppliers, but it should be a voluntary solution.

In scenario 1, a reasonable amount of credit days should be given by the DSO to the supplier as a mandatory solution. However, the DSO and supplier could set up contractual agreements on different solutions with, for example, extended days of credit for the supplier.

Pre-payment, credit checks and credit insurance will be voluntary solutions implemented by the specific player. The DSO could, however, not demand pre-payment from the supplier if another contractual agreement has not been set up regulating the claim.

Third party solutions are further analyzed in scenario 3-6. The use of a financial third party should be voluntary for the market participants, but the use of an arbitrary third party regulating the monetary stream in order to distribute the credit risk between DSO and supplier should be a mandatory solution if implemented. Industry funds set up by either DSOs or suppliers in order to reduce the credit risk for a specific player should, if implemented, be voluntary solutions. Strict market entry requirements/certifications or similar should naturally be a mandatory Nordic solution if implemented.

The risk premium solution is implemented primarily in order to compensate supplier for increased credit risk. A risk premium solution should be mandatory if implemented and decided, as well as regulated by the Nordic regulators. Contractual agreements in order to regulate stakeholder responsibility are essential to create clarity for stakeholders, but primarily for the end-user.

6.4. Ernst & Young perspective on scenarios

6.4.1. Scenario 1 – DSO transfer debt to the supplier

This is the simplest scenario from an invoice/payment distribution perspective. Scenario 1 is also the scenario suggested by interviewed stakeholders, where both DSOs and suppliers have been represented. But an implementation of this scenario would lead to a major shift in risks as compared to the current situation. In order to mitigate these risks contractual agreements, risk premiums and strict market entry requirements for suppliers must be put in place in order to result in an unchanged credit risk situation compared to the current billing regime.

+	-
✓ Straightforward approach	✓ Increased credit risk for supplier
✓ Clarity in roles and responsibility in claim handling	✓ Credit risk for DSO due to insolvent or rouge suppliers
✓ Customer friendly	✓ Liquidity problems for small suppliers
	✓ Billing frequency difficulties

6.4.1.1 Analysis from a supplier perspective

The scenario would lead to an increased risk for suppliers due to the fact that the supplier's total claim against the end-user will increase dramatically. In this scenario, the supplier will have to carry a claim including distribution, supply and energy TAX against end-users. In Sweden the supplier is already responsible for energy TAX but in Denmark, Norway and Finland this would be another ad-on, and as such an even greater risk transfer from their perspective.

From a competition perspective, this scenario is viable since the suppliers are competing in an open and competitive market. The risk associated with capital being tied up for the supplier, through for example differences in billing frequency towards the end-users, should not be regulated since this is a way to differentiate in a competitive market. Stakeholders have pointed out that it is relatively uncommon with insolvent suppliers in the market under the current billing regime. It should also be kept in mind that problems connected to insolvent participants is a problem in all markets, why should it become more problematic on the electricity market.

Other challenges connected to credit risk include how installment plans and partially paid invoices from end-users will be dealt with by the supplier, since the suppliers cash flow is highly dependent on the billing frequency from the DSO. This is proposed to be monthly afterwards, with the cash flow going out and the settlements with end-users cash flow going in. The issues of not, or only partially, paid invoices must be dealt with by the supplier.

In the Danish market approximately 75% of the invoice is connected to distribution costs and taxes. In a scenario such as this, where the supplier has the responsibility for both distribution and supply invoice – the supplier will take on the role as a financial institute rather than a player in the electricity market.

6.4.1.2 Analysis from a DSO perspective

From a DSO perspective this scenario would result in increased credit risk. In this scenario, the DSO's total claim is the same as in current billing regime. However, the DSO's claims in this scenario will be divided over a few suppliers instead of thousands of end-users. If one of these suppliers become insolvent, it will have a great impact on DSOs compared to the current billing regime. In the current billing regime, bad debt against one end-user will have a minor impact on DSOs.

This scenario would also result in advantages for DSOs. DSOs would not have to carry out credit assessments of the end-user, while also being able to cut down on administrative costs connected to long-term time-consuming monitoring of overdue debts.

6.4.1.3 Risk mitigation

In order to mitigate the increased credit risk for suppliers a risk premium could be implemented. The supplier would in this case have the possibility of charging a risk premium from the DSO to compensate for the fact that the suppliers are carrying the entire credit risk in connection to bad debt against end-users. The supplier would also have to perform debt collection for both supply and distribution invoice and should therefore receive compensation for this. A proposed risk premium could be determined from the amount of unpaid end-user debt to Nordic suppliers by the end of the year. If a risk premium is implemented, it should be mandatory and regulated, as well as updated yearly by the energy market inspectorate or another independent party. Another risk mitigation option for suppliers is to conduct a credit check and demand pre payments, i.e. to force the end-user to pay in advance.

In order to mitigate credit risks for DSOs, strict market entry requirement for supplier should be put in place. These requirements should be setup in a way to ensure the DSOs that all suppliers are trustworthy at all times. Stakeholders generally find this idea appealing, but one should be very careful with what requirements that will be put in place. Another risk mitigation option for DSOs is pre payments from supplier, i.e. force the supplier to pay in advance. However, this option is probably not feasible since the DSO cannot prevent the supplier from signing up end-users connected to the DSOs distribution network.

6.4.1.4 Analysis of other characteristics

This is a beneficial scenario from an end-user friendliness perspective. It is a straightforward model and the responsibilities for each stakeholder are clear. In case of invoice issues, the end-user contacts the supplier, who charges the end-user both for power distribution and supply.

This scenario suggests a cost efficient future billing regime, where the risk of inefficiency due to a complex invoice flow and monetary stream is reduced.

The neutrality of the DSO is assured due to fact that end-users contact DSOs only in relation to technical issues and not in connection to invoice or sales related questions.

The invoice is based on estimated consumption in Finland and Denmark, which means that a comparison between the actual consumption and estimated consumption is conducted yearly. These settlement periods varies between the DSOs on the Danish market, e.g. September-September or January-January. This could become an issue since the supplier would have to carry a larger risk if the estimated consumption has been higher than actual consumption. However, as smart metering is being implemented in the Nordic countries, this should not be an issue in 5-10 years.

6.4.2. Scenario 2 – End-user in debt both to the supplier and DSO

In this scenario the credit risks would be comparatively the same as in current billing regime for DSO and supplier since claim for power distribution and supply will be handled separately, i.e. the end-user is in debt to both the supplier and the DSO.

Since both the DSO and the supplier have a contractual agreement regulating monetary claims with end-user, the DSO will also have the possibility to conduct credit check on end-user.

+	-
✓ Equally distributed credit risk for DSO and supplier	✓ Confusion for end-user in debt collection process
✓ The supplier does not have to carry higher credit risk	✓ DSO has limited insight in the billing process

6.4.2.1 Analysis from supplier perspective

From a supplier perspective, the credit risks in this scenario are unchanged compared to current billing regime. In this scenario, the total claim against the end-user is unchanged and the supplier is responsible for sending out invoices and monitor due dates. Debt collection resides at the supplier and the DSO. Compared to the current billing the invoice process is relatively unchanged and, as such, it is an appealing option from a supplier perspective. However, this brings an increased administrative burden for suppliers, since they are responsible for adding the DSO invoice data onto the end-user invoice and passing on any monetary settlement to the DSO.

6.4.2.2 Analysis from a DSO perspective

Compared to scenario 1, the credit risk for DSOs against insolvent or rogue suppliers is partially reduced due to the fact that DSOs could claim unsettled end-user debts directly from the end-user, for example if a supplier goes out of business. However, it is important to note that under normal circumstances the supplier is in control of the monetary stream going from end-users to DSOs. From a DSO perspective this means that the credit risk slightly increases compared to the current situation, since DSOs do not have access to money in transit. In case a supplier is rouge or suddenly becomes insolvent, money in transit could get locked up, or lost.

Looking at credit risks that are connected to end-users they stay unchanged compared to the current billing regime, since the DSOs claim and the suppliers claim are separated, i.e. the end-user is in debt to both the supplier and the DSO.

6.4.2.3 Risk mitigation

Since both the DSO and the supplier have a contractual agreement regulating monetary claim with the end-user, they have the possibility to conduct credit check on end-user, and use pre-payments if necessary.

In order to mitigate credit risks for DSOs connected to the risk appearing because of suppliers being in control of money in transit, strict market entry requirements for suppliers or credit assurance for suppliers could be put in place. However, as discussed above this is a complex task. The preferred way to mitigate this risk is a mandatory client account setup, managed by the supplier. With client accounts all payments made by end-users are protected, and only when there is a consensus between DSO and supplier money can be withdrawn from the account.

6.4.2.4 Analysis of other characteristics

In this scenario, it is convenient to assign responsibility for the issuing of reminders to the supplier. However, a common view upon when a reminder is issued need to be sorted out. In order to manage this, an industry standard should be in place. In this way the details will not have to be agreed upon between every DSO and supplier.

From an end-user perspective this scenario is user friendly and straightforward when the invoice is paid within due date or after reminders. But since the debt collection process resides at the DSO and at the supplier, confusion could arise when the end-users receive two debt collection letters, individually initiated by the DSO and by the supplier, and sometimes sent out by a professional debt collector firm. One should however keep in mind that this is the way it is managed in the current billing regime – hence the shift of party in the debt collection is probably easy to accept. From a customer perspective this is not as convenient as scenario 1, but this will only affect customer that do not pay upon due date, i.e. the majority of end-users will not face this problem.

The supplier is responsible for sending out an invoice with the billing frequency that the DSO has agreed upon with the end-user, but this invoice does not have to include the cost of electricity supply – which makes it possible to use different billing frequencies for the DSO's and the supplier's claim.

From a cost efficiency perspective this scenario suggests a credit risk solution where it could become difficult to determine stakeholder responsibility in claims issues, which could lead to increased costs. A potential issue is, for example, how partial payments from end-users will be spitted between supplier and DSO. This issue should be managed and controlled by the supplier, and the split of partially paid invoices should be proportional to the original claim. In this scenario, the DSO and the supplier need to setup a data communication link to transfer invoice data from the DSO to the supplier and payment status from the supplier to the DSO. Since no common centralized function is setup to act as print shop for invoices, and to manage client accounts, this functionality needs to be established at the supplier (In scenario 6 this problem is mitigated trough a common print shop and a common party managing the split of the monetary stream from the end-user.)

From a competition perspective, this scenario would not imply a risk, since the supplier and DSO still have the possibility to offer end-user different payment alternatives, billing frequency and customer care, but the neutrality of the DSO is threatened, since the DSO could be in

contact with end-user in invoice or sales related questions. This is, however, only in debt collection process.

6.4.3. Scenario 3 – End-user is in debt both to the supplier and the DSO. An arbitrary third party is setup in order to protect DSO against insolvent supplier

This scenario is a further development of scenario 2, and in general the same credit risks apply. The main difference is the setup of a third party (DSO industry fund) between the DSO and the supplier to reduce individual DSOs' credit risks connected to money in transfer. The role of the industry fund is to manage the monetary stream between the supplier and the DSO, and if necessary distribute losses proportionally among all DSO connected to the industry fund. This scenarios does not eliminate the credit risk, instead it distributes the credit risk proportionally among all DSO.

+	-
✓ Equally distributed credit risk for DSO and supplier	✓ Complex solution by using third party drives higher costs
✓ DSO is protected against insolvent suppliers	✓ Confusing for end-user in case of debt collection
	✓ DSO has limited insight in the billing process

6.4.3.1 Analysis from a supplier perspective

As described in scenario 2 above.

6.4.3.2 Analysis from a DSOs perspective

In this scenario, the credit risk connected to money in transfer between the end-user and the DSO is reduced in comparison to scenarios 2.

6.4.3.3 Risk mitigation

As described in scenario 2 above with amendments. The main function of the industry fund is to reduce individual DSOs' credit risk by distributing the losses among all connected DSOs.

6.4.3.4 Analysis of other characteristics

As described in scenario 2 above with amendments. By introducing a third party, the credit risks for individual DSOs are reduced without hindering new market entry from suppliers. This third party is a solution that drives costs. If this option is to be considered it should be on a voluntary basis.

This scenario is a high complexity option and the introduction of a third party solution might not be aligned with regulations in the Nordic countries. Thus, it has to be investigated further. It is important to address the issues of who will take on the role as a third party and how this solution could be harmonized on a common Nordic end-user market.

The third party solution as described above would incur additional cost due to more administration and it would probably be more cost efficient to reduce the risk of insolvent suppliers earlier in the process, by for example increasing the requirements to enter the market or the use of client accounts as described in scenario 2.

6.4.4. Scenario 4 – Arbitrary third party in order to split monetary stream between DSO and supplier

By placing a centralized third party between end-user and stakeholders (DSOs and suppliers) the credit risk both for DSOs and suppliers would be the same as in the current billing scenario. The claim will, as in the current billing regime, be handled by DSOs and suppliers separately. The end-user is in debt both to the DSO and the supplier for power distribution and supply. The use of the third party is voluntary from a DSO perspective. If the DSO chooses to use a third party the supplier is obliged to accept.

+	-
✓ Equally distributed credit risk for DSO and supplier	✓ Confusion for end-user in debt collection process
✓ DSO is protected against insolvent suppliers	✓ DSO has limited insight in the billing process
✓ The supplier does not have to carry higher credit risk	✓ Complex solution by using third party drives higher costs

6.4.4.1 Analysis from a supplier perspective

From a supplier perspective, the credit risk would be unchanged in comparison to the current billing regime.

6.4.4.2 Analysis from a DSOs perspective

From the DSO's perspective the credit risk would be unchanged in comparison to the current billing regime.

6.4.4.3 Risk mitigation

As described in scenario 2 above with amendments. In this scenario, the introduction of market entry requirements and/or client accounts etc. is not necessary in order to protect DSOs. With an independent third party responsible for accurately splitting the monetary stream from the customer, there is no transfer of or new risks occurring for the supplier and the DSO in comparison to current situation.

6.4.4.4 Analysis of other characteristics

As described in scenario 2 with amendments. Since no client account or market requirements etc. are necessary, this model is less complex from a risk mitigation perspective than scenario 1 and 2. However, in this model a third party needs to be in place acting as a clearing house for the monetary stream going from the end-user to DSOs and suppliers, which increases the administrational complexity. It is important to address the issues of who will take on the role as a third party and how this solution will be harmonized in a common Nordic end-user market. A third party solution would increase the administrative external costs and it has to be further analyzed if it would be more cost efficient to reduce the risk of insolvent suppliers earlier in the process, for example as described in scenario 2.

From a supplier perspective, this model has an advantage in comparison to scenarios 2. In this scenario, the suppliers are no longer responsible for splitting up the monetary stream between themselves and the DSOs, thus reducing the need to setup this logic in-house. This would suggest less administration, and thereby also make it easier for new suppliers to enter the market.

6.4.5. Scenario 5- End-user debt is transferred from DSO and supplier to financial third party

This scenario is similar to scenario 4 but with an external financial third party between end-user and stakeholders (DSO and supplier) instead of an arbitrary non-profit third party.

In this scenario, DSO and supplier receivables are sold to a financial institute, and the end-user is in debt only to the financial institute.

+	-
✓ Equally distributed credit risk for DSO and supplier	✓ Confusion for end-user in debt collection process
✓ The supplier does not have to carry higher credit risk	✓ DSO has limited insight in the billing process
✓ DSO is protected against insolvent suppliers	✓ Complex solution by using third party drives higher costs

6.4.5.1 Analysis from a supplier perspective

The credit risk is unchanged in comparison to the current billing regime.

6.4.5.2 Analysis from a DSO perspective

The credit risk is unchanged in comparison to the current billing regime.

6.4.5.3 Risk mitigation

Risk is mitigated through a transfer of receivables from the DSO and the supplier to a financial institute.

This scenario suggests that the third party financial institute will carry out due date monitoring and debt collection against the end-user. This will, however, not imply problems in customer satisfaction, since DSOs and suppliers already to a great extent use third parties for debt collection in the current billing scenario. It is very important that suppliers remain the single point of contact regarding invoice questions. The introduction of a financial institute could result in an increased amount of payment alternatives for end-users.

6.4.5.4 Analysis of other characteristics

Same as described in scenario 4 with amendments:

Usually, a financial institute charges a risk premium corresponding to the credit risk that is transferred. The risk premium varies depending on specific receivables that are sold. The financial institute will also charge a premium for their services, and this might lead to increased costs compared to the current situation. On the other hand, financial institutes are usually very effective in debt collection, which could result in a low charged premium and in the end a more cost efficient process for both DSOs and suppliers.

The scenario should not imply problems in customer satisfaction, since the use of third party financial institute is to a great extent already in use in the Nordic countries in general. However, it is important that the supplier remains the single point of contact regarding invoice questions.

The introduction of a financial institute could also result in more payment alternatives for end-users depending on agreement with the financial institute.

This solution should be voluntary for the DSOs and suppliers, since a mandatory solution could hinder new suppliers from entering the market, i.e. some supplier might not like this for

various reasons such as: no possibility to differentiate through different payment options, increased costs, increased distance to end-user etc.

The neutrality of the DSO is threatened, since the DSO could be in contact with end-user in invoice or sales related questions when an agreement is signed.

6.4.6. Scenario 6 – Third party / supplier handles print shop and client accounts

This scenario is a further development of scenario 2 and 4. It describes a more centralized future billing regime, where all DSOs and suppliers in the market use common functions for invoice printing and accurately splitting the monetary stream from the end-user

This scenario is a big leap forward in comparison to the current billing regime, and the initial implementation would require a big effort. However, once in place there are advantages connected to economics of scale that could result in lower costs for all parties and at the same time unchanged credit risks compared to the current billing regime.

To take full advantage of economies of scale in this scenario it should be a mandatory solution.

+	-
✓ Easy set up of billing mechanism for smaller suppliers in case of print shop solution	✓ Confusing for end-user because of debt collectionf from two parties
✓ Credit risks unchanged	✓ Billing and payment reminder frequency
✓ Metering data unchanged	✓ Days of credit
✓ Clarity in roles and responsibility	✓ Increased cost through introduction of client account

6.4.6.1 Analysis from a supplier perspective

From a supplier perspective the credit risk would be unchanged compared to the current billing regime.

6.4.6.2 Analysis from a DSOs perspective

From a DSO perspective the credit risk would be unchanged in comparison to the current billing regime.

6.4.6.3 Risk mitigation

As described in scenario 2 and 4 above with amendments. In this scenario, the introduction of market entry requirements and/or client accounts etc. is not necessary to protect DSOs. With an independent third party responsible to accurately splitting the monetary stream from the customer there is no transfer of or new risks occurring for the supplier and the DSO compared to current situation.

6.4.6.4 Analysis of other characteristics

As described in scenario 2 and 4 with amendments. Since no client account or market requirements are necessary this model is less complex. In this model it would be relatively easy for a new supplier to enter the market. In this scenario the suppliers are no longer responsible for splitting up the monetary stream between themselves and the DSOs, and they do not need to compile, print and send out invoices anymore. Therefore, they do not need to set up this logic in house, which would lead to less administration, and thereby also make it easier for new suppliers to enter the market.

In this model suppliers and DSOs only need to set up data communication with two parties, to manage invoicing and monetary settlements. The common print shop and the common functionality are set up to split the monetary stream. Compared to the other scenarios this is a huge advantage, as the other scenarios require data communication between all suppliers and DSOs with the same end-users, i.e. between all suppliers with active end-users on a DSOs grid.

This scenario suggests high complexity and it is important to address the issues of who will take on the role as a common third party (print shop and function to split monetary stream accurately) and how this solution will be harmonized on a common Nordic end-user market. Should this be setup in the Nordics or in each country?

A third party solution as described above would increase the complexity compared to the other scenarios, and in this scenario additional costs will occur since this solution would cause more administration at the centralized functions. However, the administrative cost would probably decrease in the DSOs and the suppliers' local organization as compared to the other scenarios and the current billing regime. Since this is supposed to be a common solution for the entire market, high volumes will be managed by the centralized functions, and therefore we can expect economics of scale in the processes, thus lowering cost compared to the same processes when run by suppliers, as suggested in the other scenarios. Based upon this, the scenario should be investigated more in detail to find out if it could be a viable way forward.

This scenario could cause issues regarding differences in laws and regulations in the Nordic countries and this has to be investigated further.

From a competition perspective this would be a viable scenario, since suppliers still have the possibility of offering end-users different payment alternatives and billing frequency. The common third party only takes on the role as an intermediary in the monetary stream and print shop.

The neutrality of the DSO is threatened, since the DSO could be in contact with end-user in invoice or sales related questions.

7. Conclusion

7.1. Conclusions regarding scenario for future billing regime

The conclusions are based on stakeholders' opinion provided in interviews, desktop research and scenario analysis. One conclusion is that different alternatives would be viable for a future billing regime and the choice of scenario is partially dependent of what one would like to primarily focus on. These conclusions primarily focus on distribution of credit risks and the six requirements from *Consideration of alternative billing regimes for the common Nordic end-user market* (Vaasa ETT) are sub-ordinarily considered.

Ernst & Young would primarily like to highlight three scenarios: 1, 2 and 6.

Scenario 1 is primarily built upon the findings in *Consideration of alternative billing regimes for the common Nordic end-user market* (Vaasa ETT) and stakeholder answers from NordREG's survey regarding the future billing regime. In the stakeholder survey the market clearly declared that the supplier should carry the responsibility for the debt collection of both distribution and supply invoice. The stakeholders also clearly stated that mandatory payment guarantees to suppliers should be implemented into the future billing regime. Scenario 1, which is the choice of the stakeholders, would suggest advantages such as:

- Customer satisfaction is high, since end-users are primarily in contact with one party (supplier) through the entire billing process, which means that customer confusion due to different creditors is reduced.
- Clarity in stakeholder roles, responsibility and claim handling: this scenario suggests a straightforward approach in claim handling, roles and responsibility. In case debtor (supplier and end-user) fails to pay the invoice or payment reminder, there is clarity in who could claim money from whom.
- Straightforward approach in distribution of credit risk: the supplier will carry larger credit risks, but this risk could be reduced through the introduction of a risk premium.

In Ernst & Young's scenario analysis there are, however, a number of complications appearing in this scenario. This scenario would result in the appearance of a number of credit risks such as e.g.:

- Increased credit risk for DSOs because of fewer customers with high amounts outstanding against the DSO (suppliers)
- Increased risk for the supplier because their claim against the end-users in this scenario increases a lot when it includes both the supply and the distribution (and TAX)
- Suppliers are responsible for both due date monitoring and debt collection of distribution and supply (and Tax) from end-user.

In order to distribute credit risk between DSOs and suppliers, it would be necessary to implement a risk premium for suppliers. The introduction, responsibility, running expenses and design of the risk premium would be complex and perhaps costly.

At the same time, since the credit risk increases for DSOs due to potential entry of insolvent or rough suppliers it would be suggested to introduce licensing/market entry requirements of/for suppliers in order to enter the market. This is also a solution that would bring great difficulties in design and at the same time create barriers of entry for new suppliers.

This scenario could also result in difficulties for supplier caused by dramatically increased working capital due to responsibility to handle the claim of both power distribution and supply invoice. This would primarily cause problem for smaller suppliers, who doesn't have the financial strength.

Based on the conclusions stated above it would be preferred to use a scenario where the stakeholders (DSO and supplier) have separate claims against the end-user, which is the case in the other scenarios.

In the interview phase, the stakeholders however didn't find scenario 3-5 viable solutions for a future billing regime – because these scenarios are complex, drive costs and lack customer friendliness. These scenarios could also cause inefficiencies and confusion regarding roles and responsibilities. For example in scenario 3 the set up of an arbitrary third party in order to protect DSO against insolvent supplier and in scenario 4 where an arbitrary third party is setup in order to split monetary stream between DSO and supplier – are probably more complex ways of mitigating risks than the proposed client accounts in scenario 2. In scenario 5, where the end-user debt is transferred from DSO and supplier to a financial third party, additional costs and limited insight in billing process for supplier and DSO will occur - thus not a viable mandatory solution.

Given these findings Ernst & Young suggests either scenario 2 or 6 for the future billing regime. Scenario 2 suggests a straightforward approach which is not much different from the current billing regime from a risk perspective. In scenario 2 it is, however, important for the supplier to set up client accounts in order to avoid difficulties caused by insolvent and rough players, i.e. loss of money in transit for DSOs. Scenario 2 suggests a viable scenario both from a credit risk perspective and from the six requirements stated in *Consideration of alternative billing regimes for the common Nordic end-user market* (Vaasa ETT). Some of the advantages of scenario 2 are:

- Equally distributed credit risk between DSO and supplier, where the credit risks are similar to the credit risk in current billing regime
- Clarity in roles and responsibility where billing frequency, payment reminders and debt collection is straightforward and stakeholders would not have to experience the loss of control regarding the claim to the end-user
- The client account reduces the credit risks for all stakeholders
- This scenario would also be relatively simple to implement taking the current billing regime into consideration.

Ernst & Young also finds scenario 6 viable for a future billing scenario and an alternative that should be considered. Scenario 6 would suggest similar advantages as in scenario 2, but the introduction of a common print shop and a common function for splitting the monetary stream could result in cost efficiencies due to economies of scale. This scenario is also beneficial for smaller suppliers and new market entry. The print shop makes it easy for new players to enter the market, since a billing mechanism is not needed. End-user debt from distribution invoice is not transferred from DSO to supplier, which means that the supplier will not have to carry a larger credit risk compared to current situation. Another advantage of scenario 6 is the less complex setup of data communications between stakeholders. In scenario 6, DSOs and suppliers only need to setup communication with the common functions, not each other.