SERVICE PURCHASING IN ELECTRICITY DISTRIBUTION NETWORK SECTOR
Satu VILJAINEN
Lappeenranta University of Technology – Finland
satu.viljainen@lut.fi
Kaisa TAHVANAINEN
Lappeenranta University of Technology – Finland
kaisa.tahvanainen@lut.fi
Petri TRYGG
Tampere University of Technology – Finland
petri.trygg@tut.fi
Pertti JÄRVENTAUSTA
Tampere University of Technology – Finland
pertti.jarventausta@tut.fi
Anna AMINOFF
VTT Technical Research Centre of Finland – Finland
anna.aminoff@vtt.fi
Ilmari LAPPETELÄINEN
VTT Technical Research Centre of Finland – Finland
ilmari.lappetalainen@vtt.fi
Jarmo PARTANEN
Lappeenranta University of Technology – Finland
jarmo.partanen@lut.fi

ABSTRACT
This paper focuses on process of service purchasing in the electricity distribution network sector in Finland. In particular, the emphasis is on the initial stage of the process, and its significance to the success of using the service option. The results presented in the paper are based on analyzing requisites for achieving satisfactory outcomes when purchasing network-related operations as services instead of doing them in-house.

INTRODUCTION
Outsourcing of electricity distribution network-related services has become a common operations model over the past couple of decades or so. Outsourcing of services is often promoted by the electricity market deregulation that brings a new kind of efficiency focus to the whole electricity supply sector. Although the electricity distribution networks generally remain as regulated natural monopolies – and thus are not subjected to deregulation – they are not indifferent to efficiency improvement goals. In contrast to the competitive electricity businesses where the forces of competition drive the development, the main driver in the network sector is often economic regulation. However, deregulation does not typically leave the network sector entirely untouched since it tends to contribute to the owners’ increased awareness of the value of the network assets that they possess. One result of the owners’ changed attitudes towards their possessions has been the reorganization of the electricity distribution network related activities, and the increased utilization of the service option in the electricity distribution networks sector.

In Finland, prior the electricity market deregulation in mid-1990s, municipal ownership was the dominating form of ownership in the electricity distribution, and the owners mainly felt that they were in public service business.

Municipal ownership has continued to retain its popularity but nowadays also this kind of owners usually expect the business to be as profitable as possible within the limits set by economic regulation. This has led the owners to seek efficiency improvements, for instance through outsourcing network-related activities to specialized service providers. The first outsourced services usually include network construction related activities, followed later by other services, such as the operation and maintenance of the networks. In years to come, outsourcing is expected to become more and more popular operations model.

This paper discusses the experiences of service purchasing in the electricity distribution network sector in Finland. The emphasis is especially on the initial steps of the outsourcing processes and their impacts on the results of outsourcing. To gather information about outsourcing experiences, a web-based inquiry was done to all the Finnish electricity distribution network companies. Altogether 30 companies out of 80 network companies replied, representing some 72 per cent of the total electricity distribution network length in Finland, and 68 per cent of total number of customers connected to the electricity distribution networks. A detailed description of the inquiry is presented in reference [1].

REASONS FOR SERVICE PURCHASING
Like in many other industries, streamlining the organization by utilizing the service option is a common way to reach for efficiency improvements in the electricity distribution network sector. However, typical for the electricity distribution network sector in particular is the popularity of incomplete outsourcing; that is, in many cases the network companies retain some control over the utilized service provider, for instance, through shared ownership. Especially at the early stages of outsourcing process the network companies tend to keep the newly-formed service providers close to their own organizations, which may hinder the necessary development
of the service providers own organizational culture.

**Expected benefits**
Better management of cost and improved cost efficiency are often named as important goals of service purchasing. In addition, network companies highlight the importance of issues such as: access to additional resources, and the possibility to focus on their core business.

**Risks of outsourcing**
A common risk of outsourcing is that the organization continues to bear hidden costs related to the activity that is bought as a service after reorganization. In other words, the organization is unable to get rid of all the costs originating from performing the activity in-house. In the electricity distribution network sector, a significant source of concern is also that the service markets do not develop as expected. This means that there may not be enough service providers from which the network companies can choose their suppliers, or that the service providers are unable to meet the expectations of the network companies.

**Requisites for success**
An essential factor contributing to the achievement of the goals of service purchasing is the development of well-functioning service markets. This means, for instance, that the number of service providers is adequate for real competition to emerge. Another requisite for success is that the network companies have sufficient capabilities regarding the act of service purchasing. This includes being able to define the content of services as well as being aware of the true costs of performing activities in-house.

**SERVICE PURCAHSING IN THE NETWORK SECTOR IN FINLAND**
At present, there are many ways to organize the network-related activities. For instance, some companies have already outsourced nearly all their blue-collar workers, other companies are well on their way in doing so, and some companies continue to rely primarily on in-house operation.

**Organization of network-related activities**
The Finnish electricity distribution network companies apply three main methods in organizing the network-related activities: 1) in-house operation; 2) purchasing services from an independent business unit with their own organization; and 3) purchasing services from independent service providers outside their own organization.

In-house operation is still the primary means to organize the following network-related activities:
- Strategic long-term network development
- Network design (implementing network strategies)
- Field planning (routings, line profiles, etc.)
- Work planning (construction work planning, choosing network structures, etc.)

Service purchasing from within the organization is the dominating operations model in the following activities:
- Condition inspections of network components
- Customer service regarding technical issues

Service purchasing from independent service providers is the most common way to organize the following activities:
- Construction of regional networks
- Construction of aerial medium and low voltage networks
- Construction of underground medium and low voltage cable networks
- Primary substation projects
- Spare part management and logistics
- Fault repairing
- Automated meter reading and management (AMR, AMM)
- Large-scale smart meter roll-outs
- Balance settlement
- Condition monitoring of network components

Of the activities listed above, only the strategic long-term network development is seen as the kind of activity that will always continue to be at the core of the network companies' business. Regarding the other activities, there is no fundamental objection to buying them as services, and in fact many network companies already do so.

**Initial stages of service purchasing**
After deciding to use the service option the next step for a network company is to define the method by which services are to be purchased. Different methods to start service purchasing can be categorized, for instance, as follows:

a) Unbundling certain network-related activities into independent business units and implementing an internal orderer–supplier-model
b) Selling an operative unit responsible for a certain network-related activity to an outside service provider and thereafter purchasing the said service from the service market
c) Acquiring additional resources by utilizing service providers
d) Utilizing service providers to perform new network-related activities instead of building the required capabilities in-house.

Option a) of the above list represents a so called incomplete outsourcing whereas the option b) represents a so called complete outsourcing. Both these options are characterized by network companies buying network-related activities as services. Options c) and d) technically do not classify as outsourcing at all since they do not include reorganizing activities previously done in-house by a network company. Nevertheless, they represent methods to acquire services in the electricity distribution network sector.
In Finland, unbundling activities and transforming them into independent business units has been a common way to implement service purchasing in activities such as: the logistics and spare part management of network components, control room operations, fault repairing, and commercial customer service. When the spin-offs remain within the borders of the network companies (or larger energy concerns), they are often guaranteed a certain amount of contracts for few years ahead. This means that the relationship between the network company and its spin-off service provider is extremely close, and that the newly-formed service provider does not face fierce competition at the start of its existence. This protection is often thought necessary to soften the transition from natural monopoly to free market economy that the service providers face once they start to live on their own. The so-called safety period typically extends from one year to several years.

In network planning activities the most common way to start service purchasing has been to acquire additional resources. Complementing own resources has also been the main reason for service purchasing, for instance, in the construction of medium and low voltage overhead lines and underground cable networks, condition inspections of network components, smart meter reading and management, and technical customer service. Balance settlement is an example of an activity, in which the network companies have turned to service providers when facing new requirements. The selling of an operative unit; that is, a complete outsourcing has never been the most common way to start the reorganization of the network-related activities among the Finnish electricity distribution network companies, although some individual companies may have utilized this option also.

**Achievement of goals**

As mentioned earlier, one requisite for successful service purchasing is that there are enough qualified service providers among which the network company may choose its supplier. This is, however, not always the case. For instance, some Finnish electricity distribution network companies have started service purchasing even though they have received a tender from only one qualified supplier. Despite this, however, the goals of service purchasing may have been reached during the first three years of service purchasing. The achievement of goals of service purchasing in relation to the number of qualified service providers at the start of the process are illustrated in Table I.

<table>
<thead>
<tr>
<th>Number of service providers at the start</th>
<th>1</th>
<th>≥ 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals were reached during the first 3 years</td>
<td>25 %</td>
<td>67 %</td>
</tr>
<tr>
<td>Goals have not been reached at all</td>
<td>3 %</td>
<td>5 %</td>
</tr>
</tbody>
</table>

As shown in Table I, the goals of service purchasing are most likely reached when there are at least two qualified service providers among which the network company may choose its supplier when it first enters the service contract. Obviously, the same is true for any service purchasing cases that follow. In fact, the Finnish electricity distribution network companies typically see the inadequate number of service providers as one of the most significant risks of service purchasing. However, based on the results of the network company inquiry, this risk has only very rarely come true, and even then it has not hindered the achievement of the goals of service purchasing.

**Contentment to service purchasing**

The method by which the services are acquired affects the contentment of network companies towards their service purchasing processes as a whole. The results of the network company inquiry regarding the network companies’ contentment to service purchasing in relation to the methods of acquiring services are illustrated in Tables II, III, and IV.

<table>
<thead>
<tr>
<th>Contentment</th>
<th>Satisfied</th>
<th>Neutral</th>
<th>Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services bought from inside network company’s organization</td>
<td>-</td>
<td>21 %</td>
<td>-</td>
</tr>
<tr>
<td>Services bought from outside service provider</td>
<td>7 %</td>
<td>72 %</td>
<td>-</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Contentment</th>
<th>Satisfied</th>
<th>Neutral</th>
<th>Dissatisfied</th>
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</thead>
<tbody>
<tr>
<td>Services bought from inside network company’s organization</td>
<td>20 %</td>
<td>8 %</td>
<td>-</td>
</tr>
<tr>
<td>Services bought from outside service provider</td>
<td>68 %</td>
<td>-</td>
<td>4 %</td>
</tr>
</tbody>
</table>
Buying services from outside service providers appears to lead to more satisfying outcomes than buying services form inside the network company’s organization (e.g. from independent business unit or a subsidiary). However, the use of outside service provider has sometimes also resulted in dissatisfaction to service purchasing whereas the use of inside service provider has never done so.

**DISCUSSION**

According to the Finnish electricity distribution network companies, the expected benefits of service purchasing include better management of cost, improved cost efficiency, and the ability to focus on the core business. In addition, through service purchasing the network companies often aim to get additional resources that they need, for instance, in the case large disturbances. Similar goals can also be found in other industries. However, the electricity distribution network sector differs to some extent from other industries when considering the methods of implementing the service purchasing. In particular, the popularity of incomplete outsourcing appears to be a rather unique characteristic of the electricity distribution network sector.

The network companies’ reluctance to give up the control of the network-related services might be partially explained by their ownership structures and natural monopoly positions. Municipal owners of the network companies may view the reorganizations of network operations from political perspectives and fear that such actions may lead to the removal of jobs from the area. Retaining control over the spin-off service provider might be seen as a way to guarantee that local perspective continues to play a role in running the service provider’s business. Natural monopoly position, on the other hand, has meant that so far the network companies have not faced strong pressures to improve their efficiencies. This is, however, changing as the regulator continues to gain popularity among the network companies. The expected benefits of service purchasing have been: better management of cost, improved cost efficiency, the ability to focus on the core business, and access to additional resources. The overall satisfaction of the network companies to the results of their service purchasing is high, and the achievement of goals has succeeded regardless of the method used in service purchasing. Network companies’ main concerns about having too few qualified suppliers and ending up with a poorly-functioning orderer–supplier relationship have not been realized. Goals of reorganizing network-related activities are most likely to be reached if the service providers are independent from network companies in terms of their decision-making; that is, the network companies cease their control over the service providers. The network companies themselves also appear to be more satisfied with service purchasing when they are buying services from outside service providers. In addition, if safety periods are defined for the spin-off service providers, they should not be made too long. Based on the network companies’ experiences, one year gives the newly-formed service provider enough time to adjust to its new business environment.

**CONCLUSIONS**

In Finland, service purchasing is nowadays a common operations model in the electricity distribution network sector, and it continues to gain popularity among the network companies. The expected befits of service purchasing have been: better management of cost, improved cost efficiency, the ability to focus on the core business, and access to additional resources. The overall satisfaction of the network companies to the results of their service purchasing is high, and the achievement of goals has succeeded regardless of the method used in service purchasing. Network companies’ main concerns about having too few qualified suppliers and ending up with a poorly-functioning orderer–supplier relationship have not been realized. Goals of reorganizing network-related activities are most likely to be reached if the service providers are independent from network companies in terms of their decision-making; that is, the network companies cease their control over the service providers. The network companies themselves also appear to be more satisfied with service purchasing when they are buying services from outside service providers. In addition, if safety periods are defined for the spin-off service providers, they should not be made too long. Based on the network companies’ experiences, one year gives the newly-formed service provider enough time to adjust to its new business environment.

**REFERENCES**