

**An inquiry into the problems pertaining to the  
acquisition of servitudes for Transmission Powerlines  
based on a Life-cycle Approach**

by

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**Minor Dissertation**

Submitted in partial fulfilment of the requirements for the  
Degree



**Environmental Management**

at the

**University of Johannesburg**



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September 2011

# AFFIDAVIT

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# ACKNOWLEDGEMENTS

I would like to thank the following individuals and organisations for making the completion of this minor dissertation possible:

- God Almighty for the life and wisdom He has given me.
- My supervisor, Dr June Meeuwis and co-supervisor, Mr Hein Vosloo of Eskom, for their patience and assistance throughout the completion of this minor dissertation.
- My parents, Petrus and Maria Ramaphosa, my husband, Gift Mothoa, and my siblings, George, Silas, Salphinah, Michael and Irene Ramaphosa, for their support and encouragement.
- Eskom, especially the following departments within the organisation, for participating in the study:
  - Transmission: Lands and Rights
  - Eskom Insurance
  - Expansion Planning
  - Corporate Affairs: Communications
- The following participants for their contribution and participation in the study:
  - Carol Vosloo of ARUP, NMPPP Projects,
  - Jon Smallie of Endangered Wildlife Trust,
  - Environmental Control Officers at the Nature Conservation Corporation.



## **ABSTRACT**

Electrical energy has evolved to become the main source of energy as it fuels the processes in industry and other sectors. Electricity, generated at a power station, has to be transmitted to the users through transmission powerlines. Strips of land, in the form of servitudes, need to be acquired for the erection of these powerlines. Because this land passes through agricultural areas, residential areas and industrial areas which do not belong to the power utilities, these utilities need to acquire this land. The inability to acquire these strips of land is proving to be a problem for Eskom; in fact, it has been dubbed one of Eskom's greatest risks (Seabe, 2010, Personal Comment).

Hypotheses in respect of the problems pertaining to the acquisition of servitudes for transmission powerlines have been formulated with the supposition being that, by nature, these problems are not only biophysical, but also socio-cultural. Those classified as socio-cultural problems are dependent on human behaviour: it is people who grant servitudes, and also people who own the land on which the servitudes are required. These problems, if not identified and addressed, have the potential to manifest at a later stage, causing conflict between the proponent and the landowner and in turn resulting in the electricity supply in South Africa being sporadically curtailed.

It is therefore imperative that the problems pertaining to the acquisition of servitudes be investigated and analysed, and that methods be devised from the lessons learnt through investigating these problems. These methods, if implemented correctly, should minimise conflict between the landowners and Eskom and subsequently avert the risk of Eskom being unsuccessful in acquiring servitudes. These methods should also facilitate an improved, effective and successful servitude acquisition process, which will in turn ensure a continuous supply of electricity.

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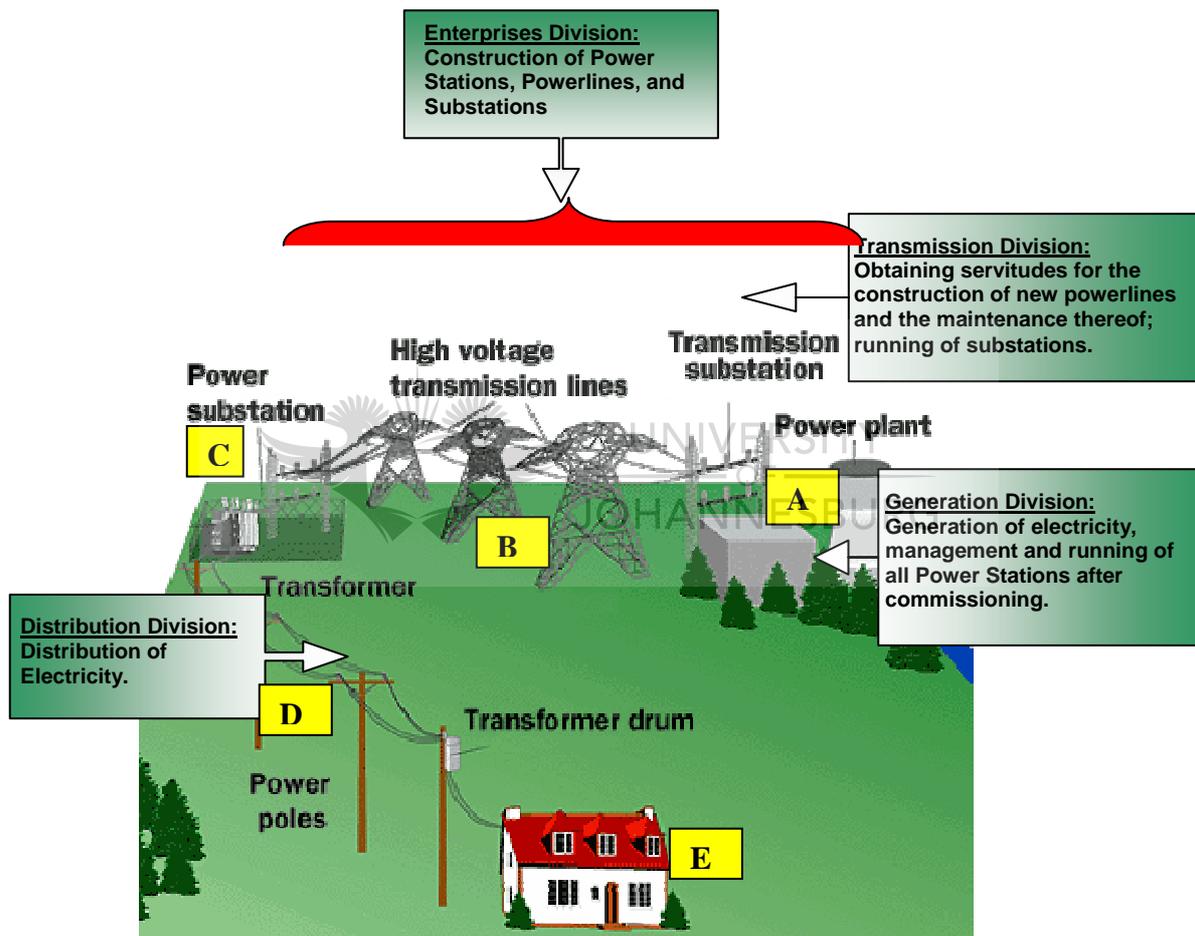
# 1: INTRODUCTION

*This section of the study gives a brief introduction to the study. Firstly, it describes a power utility and the way in which it functions and goes on to briefly explain the aim and importance of the study.*

Eskom is the largest **Power Utility** in South Africa and produces 90% of the electricity generated in South Africa. Eskom is currently producing 34 000 Mega Watts of electricity, which is lower than the demand for electricity in the country, and this demand is growing year by year (Pottinger, 2003 and Eskom, 2010). Electricity accounts for an increasing proportion of the energy demand as technology advances and more of the world's population comes to rely on lighting, refrigeration, electric motors, mass communication, information systems and other services based on energy consumption (Marsh and Grossa, 1996). Between the 1980s and early 1990s, energy consumption grew by 25% and the demand doubled in the following decade where a growth of 50% between 1998 and 2008 was recorded (Eskom, 2008). This increase in the demand for electricity can be attributed to the rapid population growth and economic development experienced in the country. As the demand for electricity increases, so the need to evacuate (taking the energy out of the substation) this electricity escalates. It is Eskom's responsibility to transmit this electricity from the power stations through to the substation and finally to the consumer. The Eskom Transmission Network currently runs for approximately 300 000km at voltages ranging from 132 kV to 765 kV.

Figure 1 (Page 2) shows that Eskom is divided into four divisions, namely the *Generation division*; responsible for electricity generation at all thirteen (13) coal-fired power stations, the nuclear power station, hydroelectric power stations, Open Cycle Gas Turbines and the pumped storage stations; *Transmission division*, responsible for amongst other functions, obtaining servitudes for the construction of transmission powerlines and the maintenance thereof; the *Distribution division*, responsible for the distribution of electricity and the *Enterprises division*, responsible for the construction of power stations, substations and powerlines. For the purpose of this study, the focus will be on the Transmission division exclusively.

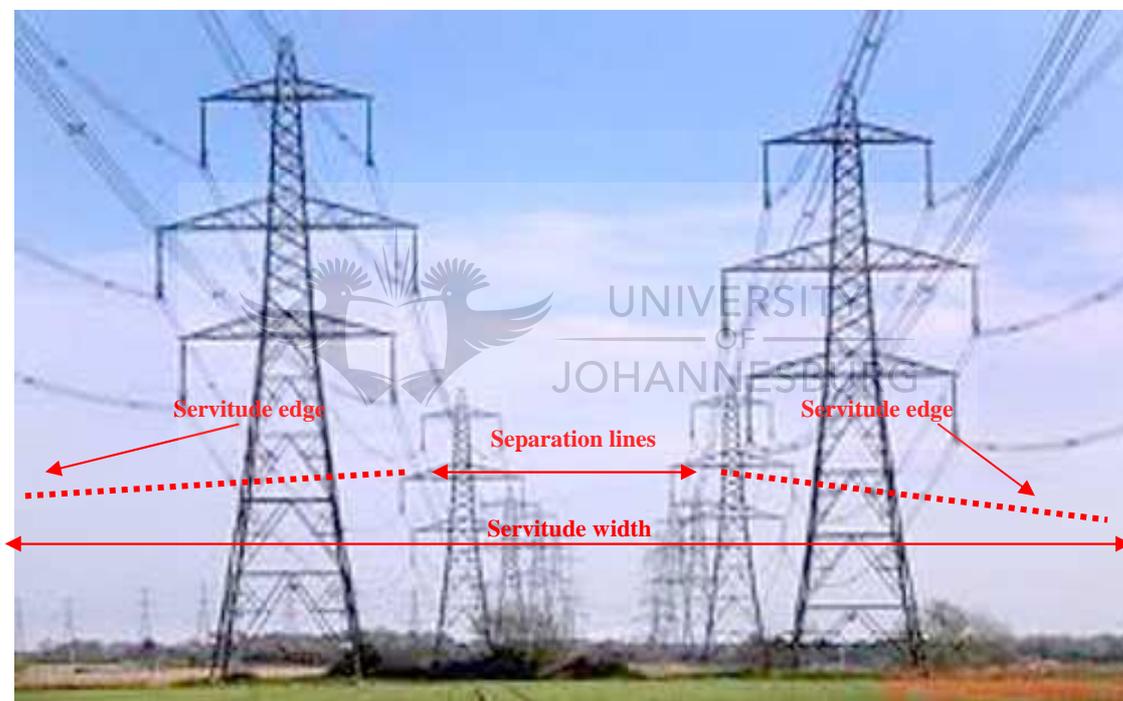
Figure 1 also shows the process flow of electricity. Electricity is generated at a power station (A) and then transmitted to the power substation (C) through high voltage powerlines (B). The electricity voltage is between 132kV and 765kV. After the electricity reaches the substation (B), it is in the final stage of delivery (before it is retailed to the end user). A distribution service network (D) is used to carry the electricity from the transmitter to the end user/consumer (E). The electricity is then down-rated to a lower voltage, below 50kV, and distributed through distribution lines (D) to the households (E).



**Figure 1:** Transmission of electricity from the power station t to the substation through the transmission powerlines, and its distribution to the consumer through the distribution lines (Adapted from Brain, 2010).

Eskom has developed a comprehensive plan to integrate the supply and demand activities to manage the subsequent increase in electricity demand. This initiative is focusing on upgrading the country’s power supply infrastructure by, amongst others, building new power stations and expanding the transmission network (Eskom, 2008).

In order to expand the transmission network, servitudes are required. Without servitudes, it would be impossible to construct powerlines. This means that no electricity could then be delivered to the consumers. A servitude, as illustrated in figure 2, can be defined as “a right granted to Eskom and registered against the title deed of the land in question; it usually involves the payment of consideration” (Gaylard, 2005). The strips of land pass through residential land, agricultural land, and industrial land, heritage sites, areas of archaeological importance, and game reserves. Eskom needs to enter into negotiations with the owners of these strips of land in order to obtain servitudes for the construction of the transmission powerlines. It is the process of obtaining these servitudes that has become problematical (Seabe Personal Comment, 2010).



**Figure 2:** Illustration of a servitude and the separation lines between the two ends of a servitude. (Vosloo, 2004)

The problems associated with the inability of Eskom to acquire servitudes is of a social nature, in that it is the owners of the land who do not want to grant Eskom access to these strips of land. Power utilities internationally report that it can take up to 10 years and longer to obtain a new servitude, if at all (Bohme *et al*, 1998). The reluctance of the landowners to grant Eskom servitudes can be attributed to the respective interactions that occur between the owners of the land and Eskom

personnel throughout the life cycle of the powerline. Gaylard (2005) attributes Eskom's inability to acquire servitudes to the fact that the utility does not honour the servitude agreement conditions such as maintaining the land strips, the utility's contractors' failing to keep farm gates locked to prevent livestock from escaping to neighbouring properties, or to prevent crop damage as a result of fires caused by anthropogenic activities. Bohme *et al* (1998) assert that powerlines impact on the environment in that they alter land-use functions, cause land value depreciation, invade forested areas and the vegetation of the surrounding territory, and are responsible for creating electro-magnetic fields, causing audible noise and destroying the aesthetics of the environment. The reasons above contribute to the lengthy period it takes to acquire servitudes for powerlines. This study will look at further reasons that prevent Eskom from acquiring servitudes.

It must be borne in mind that even if new power stations are built, as long as Eskom is unable to obtain servitudes, the utility will not be in a position to evacuate electricity to meet the current and future demands of the country. Eskom's inability to acquire servitudes timeously has therefore been highlighted as one of the greatest challenges (and risks) facing Eskom - without servitudes, power cannot be evacuated and cannot reach those who need it (Seabe 2010, Personal Comment).

Table 1 (page 5) shows that the widths of the servitudes differ, depending on the electricity voltage that is carried through the powerline and the type of tower that has been erected. The higher the electricity voltage, the wider the servitude required. This is due to the fact that larger towers are usually used for the spanning of transmission lines carrying higher electricity voltages. A 765kV line has an 80m-wide servitude, while a 400kV double circuit line has a 55m-wide servitude. It should be noted that negotiating for powerlines carrying a higher voltage can be cumbersome and time-consuming on account of the greater areas of land required. In cases where the land was previously used for ploughing, the granting of a servitude would affect the crop yield and stock feed outputs respectively. The loss of land is one factor, amongst many others suggested to impact on the timeous acquisition of servitudes (Vosloo 2010, Personal Comment)

**Table1:** Servitude widths and line separation distances (Vosloo, 2004)

Voltage	Servitude Width	Separation	Servitudes in Commercial Forests
132kV	31 m/36 m	21 m/25 m	72 m
132kV Double Circuit		32 m	
275kV	47 m	32 m	77 m
400kV s/s and Guyed Vee	47 m/55 m	35 m/40 m	77 m/80 m
400kV CRS and Long Spans	55 m	55 m	
765kV	80 m	60 m	
533kV Double Circuit	30 m	49 m	

**The main aim of this study is** to investigate the social problems associated with the acquisition of servitudes for transmission powerlines. This investigation will be based on a life-cycle approach because these problems, which are of a social nature, emanate from the respective social interactions which occur throughout the different phases of the life cycle of a powerline.

**This study is important because it helps to:**

- Identify all the role players who are involved in the life cycle of a powerline. Thus, the intricacies of the social interaction between the landowners and Eskom can be addressed as long as the Eskom personnel acting as facilitators have been trained correctly.
- Identify all the conflict areas and practices that lead to a deterioration in relationships between Eskom and the landowners throughout the life cycle of the powerline in question.
- Develop efficient methods or means to minimise conflict between Eskom and the landowners, and in turn facilitates the timeous acquisition of new servitudes.

From the foregoing, it has been demonstrated that Eskom is faced with the challenge (risk) of not being able to obtain servitudes for the construction of powerlines. This risk is brought about by the social intricacies that exist throughout the life cycle of the powerline between the owners of the land and Eskom. It is the human element, and not the natural environment, that prevents Eskom from obtaining servitudes. A statement of the problem is presented in the following section.

## 2. STATEMENT OF THE PROBLEM

### 2.1 Background to the Problem

*This section, setting a basis for the study, presents the background to the problems pertaining to the acquisition of servitudes for transmission line projects. A statement of the problem is also presented with a view to highlighting the aims and objectives of the study. The brief background provided gives an overview of the need for the timeous acquisition of servitudes for the construction of powerlines; hence, the importance of the study.*

The shortage of electricity in South Africa was highlighted dramatically during the first half of 2008 with a number of power outages resulting from load shedding (Eskom, 2008). The physical growth of the electricity industry is constrained by the lack of funds, the virtually impossible task of gaining access to land for servitudes and the building of new power stations, as well as the expansion of the Transmission and Distribution networks respectively.

The difficulty in obtaining new servitudes for proposed powerlines is a problem across the world. Many countries are fortunate in that the growth rate in the demand for electricity is much lower than that experienced in South Africa, thus yielding more time for public participation. It is during this process of public participation where all issues pertaining to the project are raised by the public. These issues include those of a social nature. Public participation can be defined as *“any stakeholder activity carried out to encourage public input and feedback, conduct a dialogue with the public, and provide access to decision makers, assimilate public viewpoints and preferences, and demonstrate that those viewpoints and preferences have been considered by the decision makers”* (Creighton 1994).

Public participation is the first instance of social interaction between the power utility and the Interested and Affected Parties. This is the fundamental phase in the project's life cycle and needs to be conducted thoroughly. It forms the basis for the projects and it is here that the development is initiated and where issues about the proposed development are raised and resolved. It is during this process that relationships with

landowners are built in order to facilitate a smoother negotiation process for servitudes. If public participation is not conducted properly and the landowners do not understand the need and desirability of the transmission line project, there may be serious consequences during the negotiation process. This can cause delays in the process of servitude acquisition and subsequently in the development itself as well.

The problems that lead to the delays in acquiring new servitudes are normally found not only in the bio-physical environment, but more particularly in the socio-cultural environment. Often, the reluctance of landowners to grant new servitudes stems from previous poor relationships resulting from incidents during public participation processes, whereby issues raised at the public participation meetings were not incorporated into the construction plans and/or option conditions tabled during servitude negotiations were not complied with.

Linear developments such as powerlines affect many more Interested and Affected Parties than site specific projects, owing to the extent and complexity of these projects. The proponent (Eskom) is also not the landowner of the powerline route but merely requires a real right (*servitude to transmit electricity*) from the landowner. These facts complicate matters for the linear proposal, as opposed to site-specific developments and highlight the importance of this study to a proponent of linear developments.

## **2.2 Main Aim**

**The main aim of this study is** to investigate the social problems associated with the acquisition of servitudes for transmission powerlines. This investigation will be based on a life-cycle approach because these problems, being social in nature, emanate from the respective social interactions which occur throughout the different phases of the life cycle of the powerline.

## **2.3 Objectives**

The aim of this study should be achieved by examining the following objectives which are to:

- **Conduct a review of the relevant literature in an attempt to highlight the prevailing problems that hinder the acquisition of servitudes, as identified**

by other researchers. This exercise will clarify the nature of the problems pertaining to the acquisition of servitudes that exist.

- **Identify the various instances of social interactions that occur between Eskom and the landowners; based on a transmission powerline life-cycle approach.** This will make it possible to determine the links between the various phases of the life cycle of a powerline development and the associated social interactions attached to each phase.
- **Investigate and discuss the various instances of social interaction in the entire life cycle of a transmission powerline.** This will set the basis for interviews with a variety of role players to determine processes and possible areas of conflict.
- **Investigate the problems identified by Eskom personnel which may lead to deterioration in Eskom's relationship with landowners for each instance of social interaction throughout the life cycle of the powerline in question.** This part of the study will be carried out by means of interviews with Eskom personnel who are intimately involved throughout the life cycle of a powerline. Other stakeholders, who are role players in the life cycle of the powerline but whose expertise, is not accommodated within the organisation and who are, therefore, outsourced, will also be interviewed. These include Environmental Control Officers, Endangered Wildlife Trust officials and Environmental Assessment Practitioners. This investigation helps to identify areas of conflict between Eskom and the landowners throughout the life cycle of the powerline.
- **Recommend to Eskom areas and practices that will improve relationships between the utility and landowners and that will contribute to the process of acquiring new servitudes.** The recommendations generated in this part of the study will eventually bring the ultimate goal of this thesis to fruition. Once implemented, these recommendations should improve relations between landowners and Eskom and also ensure that servitudes are obtained timeously.

A summary of the objectives above is tabulated in table 2 (page 9). Table 2 gives a breakdown of the objectives of the study, their significance, how these objectives will be reached and the relevant chapters where they will be discussed.

**Table 2: A summary of the objectives, why each objective is important, how it will be realised and the relevant sections where the respective objectives will be discussed.**

<b>What?</b>	<b>Why?</b>	<b>How?</b>	<b>Where?</b>
<b>To conduct a review of literature in an attempt to highlight the prevailing problems that hinder the acquisition of servitudes, as identified by other researchers</b>	This exercise clarifies relevant issues and promotes an understanding of the problems pertaining to the acquisition of servitudes that are already operative.	Review of literature	<b>The life cycle of a powerline and the social interactions between Eskom and landowners</b> <b>Section 4</b>
<b>To identify the different instances of social interaction that prevail between Eskom and the landowners, based on a transmission powerline life-cycle approach</b>	This objective makes it possible to determine the link between the different phases of the life cycle of a powerline and the associated social interactions for each phase.	Review of literature	<b>Life cycle of a powerline and the social interactions between Eskom and the landowners</b> <b>Section 5</b>
<b>To investigate and discuss the various instances of social interaction in the entire life cycle of a transmission powerline</b>	This objective sets the basis for interviews with a variety of role players to determine processes and possible areas of conflict	Conducting interviews	<b>Methodology and data collection</b> <b>Section 6</b>
<b>To investigate the problems identified by Eskom personnel which may lead to a deterioration in Eskom's relationship with the landowners in each instance of social interaction throughout the life cycle of the powerline</b>	This part of the study is carried out on the basis of interviews with Eskom personnel who are intimately involved throughout the life cycle of a powerline. Other stakeholders who are role players in the lifecycle of the powerline but whose expertise is not accommodated within the organisation, and who are, therefore, outsourced, will also be interviewed. Such role players include Environmental Control Officers, Endangered Wildlife Trust officials and Environmental Assessment Practitioners. This investigation helps to identify areas of conflict between Eskom and the landowners throughout the life cycle of the powerline.	Data collected and discussion of results	<b>Methodology and data collection</b> <b>Section 6</b>  <b>Results and discussion of results</b> <b>Section 7</b>
<b>To recommend to Eskom areas and practices that will improve Eskom's relationships with landowners and that will help in the acquisition of new servitudes</b>	The recommendations generated in this part of the study will finally facilitate the attainment of the ultimate goal of the thesis. When implemented, these recommendations should improve relations between landowners and Eskom and also ensure that servitudes are obtained timeously.	Discussion of recommendations	<b>Recommendations</b> <b>Section 9</b>

In brief, it is anticipated that this study will awaken awareness from Eskom's point of view in the problems associated with the acquisition of servitudes for transmission powerlines. It will further highlight the need for landowners to grant Eskom servitudes, thereby participating in and contributing to the economic development of South Africa. These problems are not only concentrated in one area; they are also experienced during negotiations throughout the country. The following chapter discusses the location of the study area.



### **3. STUDY AREA**

#### **3.1 The Study Area**

The South African Power System does not operate in isolation since it is connected to other electrical systems throughout Africa, as can be seen from figure 3 (page 12). This study, which does not focus on a specific study area, focuses on the South African power system only. Figure 3 (page 12) shows that the South African power network is denser in the eastern parts of South Africa. This can be attributed largely to the fact that most of South Africa's coal is mined in the eastern parts of the country, within the borders of Mpumalanga. It is also due to this fact that the majority of the coal-fired power stations in South Africa are situated in the eastern part of the country, thus allowing for easy access to coal and thereby resulting in a denser transmission network in the east.

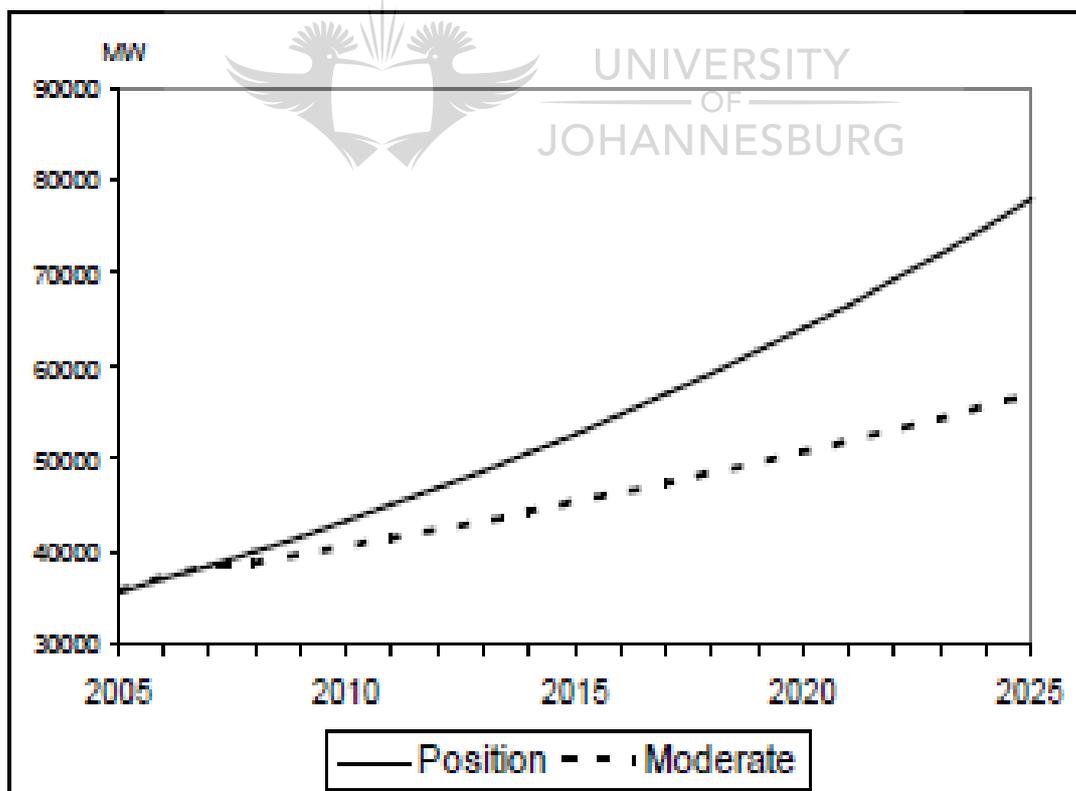
Figure 3 (page 12) also shows that two substations that are currently in the pipeline will eventually be interconnected and that provision has also been made in the expansion plans for a single thermal power station. It must be borne in mind that these interconnections are across borders which in itself generates even more complex problems. There will be a demand for electricity and therefore also for servitudes which are necessary for the transmission of electricity. The focus in this study is to investigate the socio-cultural problems pertaining to the acquisition of new servitudes for transmission powerlines to avoid the curtailment of the power supply nationally.

30° E



**Figure 3:** The South African power network and interconnections with neighbouring countries (Eskom, 2008).

Figure 4 shows that Eskom’s long-term demand forecast shows the expected demand for electricity to be between 56 710 MW and 77 960 MW in 2025, depending on the economic growth of the country (Inglesi and Pouris, 2010). Figure 4 highlights the need for servitudes for electricity expansion (Eskom, 2010). In order to manage and meet this demand, Eskom has already embarked on a Capital Expansion Strategy to intensify the distribution of electricity. This strategy includes a New Build Programme to develop and construct new power stations, to refurbish the previously “mothballed” stations known as “Return-To-Service” (RTS), to increase the generation capacity of power stations that are currently operational, known as Capacity Increase Projects and to expand the transmission network, termed Power Delivery Projects (PDP). The new stations include *inter alia* pumped storage schemes and coal-fired power stations. It is of no use to increase the electricity generation capacity while there are no servitudes to allow for the transmission of electricity. This same fact also highlights the need for this study.



**Figure 4:** Eskom’s long-term demand forecast, (2005-2025)

Source: Inglesi and Pouris, (2010)

Section 4 embraces the literature sources relating to the problems pertaining to the acquisition of servitudes for transmission lines and also includes a review of the most pertinent laws that may influence the acquisition of these servitudes. Section 5 presents the life cycle of a powerline and the social interactions between a typical electricity utility and the Interested and Affected Parties. The methodology employed for data collection and analyses is described in section 6, while the results and a discussion thereof are presented in section 7. Finally, Section 9 presents recommendations for improving the process of servitude acquisition. An example of one of the questionnaires for collecting data through interviews, as well as a transcript of Section C of the responses from the questionnaire, is presented in the Appendices.



## **4: REVIEW OF LITERATURE ILLUSTRATING KNOWN PROBLEMS RELATING TO THE OBTAINING OF SERVITUDES**

*This section comprises two sections, firstly a review of literature from previous studies which identified problems associated with the acquisition of servitudes for powerlines, and secondly, a review of the most pertinent laws that may influence the process of acquiring servitudes. These legal requirements need to be complied with throughout the life cycle of a powerline in order to establish and foster good relations with landowners, thereby facilitating the acquisition of these servitudes.*

In 1982, Butler enquired into the adequacy of an acceptable method of estimating land value losses in cases when transmission line servitudes are granted. This study suggests that the presence of a transmission line within the borders of a property has a high potential for reducing the value of that property. Butler (1982) further suggests that the reluctance of landowners to grant servitudes for transmission line developments may stem from the inadequate systems used for assessing the value of the land. This is a historical problem. Butler (1982) found that farmers are of the opinion that the presence of powerlines on their properties is problematical in that it leads to the devaluation of their properties. It also suggests that the problem of acquiring servitudes may manifest at a later time, when more servitudes are required, with the farmers then perhaps referring to those historical events in the past when they were not compensated or reimbursed according to the market value of their land for the servitudes granted. This study could confirm that historical problems can also be regarded as factors contributing to the inability of power utilities to acquire servitudes timeously.

Butler (1982) also stated that landowners are now aware of the impacts that the presence of transmission powerlines pose and are therefore reluctant to grant servitudes for transmission line construction. These impacts may range from loss of ploughing fields, effects on eco-tourism, visual impacts, and the electrical safety risk to livestock.

In 1987, Hapel (1987) undertook a study to assess the impact of high voltage transmission lines on agricultural land practices in the State of New York. This study was aimed at assessing the physical impact of powerlines on agricultural lands and practices and at establishing whether the impacts associated with the presence of powerlines have the potential to develop into problems, in turn hindering the process of servitude acquisition when servitudes are required. This study was conducted via a survey questionnaire and revealed a number of findings. Although the study revealed that a large majority of the farmers viewed the placement of high voltage electric transmission structures in actively ploughed or cultivated fields as a problem, farmers who already had powerlines on their land rated disturbance to farming operations at a lower level than farmers who did not have powerlines on their properties.

Hapel's (1987) study further revealed that there is generally no single factor (e.g. years of a farmer's experience, type of farm, size of farm equipment, angle of slope, or type of field crop) that can serve as an indicator of the farmer's perception of electricity transmission lines as a cause for concern. This finding simply translates into the fact that those farmers who do not have powerlines within the borders of their properties are reluctant to award servitudes, based on the fact that they think that the presence of servitudes would disturb their farming operations. It would, therefore, be difficult to obtain servitudes from this type of farmer. This study supports the notion that the presence of powerlines has a minimal impact on the physical environment and calls, therefore, for the recognition of the need to investigate the socio-cultural impacts of powerlines (Hapel, 1987).

Goult (1990) undertook a study similar to that conducted by Hapel (1987) which investigated the visual aspects of high voltage transmission lines and whether these voltage lines have the potential to disturb agricultural activities. His study indicated that the presence of powerlines has little impact on agricultural activities such as grazing and cropping which could therefore be practised up to and under a powerline. However, Goult (1990) uncovered a limitation in that powerlines have ramifications in the case of pesticide spraying by air. The main hazard is the height of the powerline itself, which results in a longer flying time being required for the aeroplane spraying pesticides from the air as it must fly higher, the end result potentially being material loss and poor accuracy. This economic effect impacts negatively on the

farmer, and in many cases affects his socio-cultural well-being. Goulty's (1990) study alerted the global community to the fact that powerlines pose problems as physical obstructions he also highlighted the need to further investigate the socio-cultural impacts of powerlines as well. Once again, this study supports the notion that powerlines lead to socio-cultural impacts which may in turn affect relations between developers and landowners.

Similarly, Gaylard (2004) undertook a related study that investigated the circumstances under which game ranchers object to powerlines on their properties. His study supported the findings of Butler (1982) in that it indicated that powerlines devalue game ranches by imposing negative visual impacts on the environment. Again the economic aspect was highlighted. Gaylard's (2004) study revealed that the presence of powerlines on game farms may result in a loss of tourism, a source of livelihood for game farmers. One of the game farmers was quoted by Gaylard (2004) as saying:

*“When people visit Africa, they want to see the beauty of the jungle, and not large steel structures which they ran away from in the first place”* (Gaylard, 2004).

Thus, the perception that powerlines have an impact on eco-tourism is a very real one. This socio-cultural problem also filters through to become part of the process whereby developers seek to acquire servitudes, and manifests in the farmers not wanting to grant servitudes for transmission powerlines.

Gill's (2005) study indicates that the socio-economic effects of powerlines are the main reasons for the reluctance of the general public towards a powerline project. Similarly, together with the findings of Butler (1982) and Gaylard (2004), Gill's (2005) study attributes this fact to the height of the powerlines which makes them more visible and in turn affects the aesthetics (sense of beauty) of the area. As illustrated in figures 5 (page 18) and 6 (page 18), the aesthetics of the mountain in figure 6 are changed by the presence of the powerline at the top of the right-hand side of the mountain, whereas figure 5 (page 18) appears to be more aesthetically pleasing without the visible powerline. The presence of the powerline in figure 6 (page 18) changes the view of the area.



**Figure 5:** Scenic view of a green field (Adapted from Gill, 2005)



**Figure 6:** View of a brown field showing the change of scenery due to the presence of a transmission powerline. (Adapted from Gill, 2005)

Cheema (2004) undertook a study to investigate the biological effects of electro-magnetic fields. His study also included information on the problems that are experienced by developers when negotiating for servitudes. He hypothesised that the problem that results in landowners not wanting to grant servitudes may be attributed to the notion that powerlines produce electro-magnetic fields and that those communities which reside in close proximity to the powerlines may be exposed and subsequently affected by these electro-magnetic fields. Electro-magnetic fields occur wherever there is electricity (e.g. in the immediate vicinity of high voltage overhead powerlines, low power distribution lines, household appliances and electrical office equipment) (Seitei, 2004). Cheema's study suggested that electro-magnetic fields may exacerbate the risk of biological effects such as childhood leukaemia to those who reside in close proximity to the lines.

Seitei (2003) conducted a similar study to that of Cheema (2004) to assess the effects of electro-magnetic fields on dwellings that are in close proximity to powerlines in the Motsoaledi area, Soweto-Johannesburg in South Africa. His study was undertaken by way of structured interviews with residents, and revealed that the evidence of a correlation between the presence of powerlines in close proximity to dwellings and the health effects suffered by the community is negligible. This is in contrast to Cheema's (2004) findings, which suggest that exposure to electro-magnetic fields can cause childhood leukaemia. Seitei (2003) attributed his findings to a lack of awareness and knowledge by residents about the risks and dangers of overhead powerlines and electro-magnetic fields.

Pretorius (2006) concurred with Seitei (2004), who regarded as insignificant the risk of electro-magnetic fields as a health hazard. His study investigated the effects of electro-magnetic fields on humans, plants and animals. His study revealed no evidence of a causal relationship between electro-magnetic fields and childhood leukaemia. No dose-response relationship was shown to occur between electro-magnetic field exposure and biological effects. Pretorius's (2006) study concluded that the effects of electro-magnetic fields on humans, fauna and flora are negligible. There is no conclusive evidence of a correlation between exposure to electro-magnetic fields and biological effects. However, the amount of research conducted on this issue has alerted landowners of the possible effects that electro-magnetic fields may

pose to their health and the wellbeing of their livestock. This perception could also contribute to the reluctance of landowners to grant servitudes for powerlines as they may fear livestock losses because of the uncertainties presented by the studies about the biological effects of electro-magnetic fields on domestic animals. This study also supports the findings that lack of knowledge and understanding about the presence of powerlines within one's property, or in close proximity to it, can manifest as problems during the servitude acquisition process. If people are not informed, they can develop a fear of the unknown. According to Pretorius (2006) there is inconclusive evidence of a correlation between exposure to electro-magnetic fields and biological effects in both humans and animals.

In 2008, Lipko *et al* (2008) undertook a study to determine the impacts of the right of way on the transmission system planning process. They investigated the impacts that arise on the transmission system planning process when a servitude is not acquired timeously. This study revealed that landowners are reluctant to permit the construction of new powerlines across their estates or even close to their estates - which affects the entire transmission system planning process. The whole planning system fails if the acquisition of servitudes is unsuccessful. In such an event, it is impossible then to respond to the demand for electricity. Lipko *et al* (2008) further suggest that landowners have a new perspective on owning land as real estate prices in Poland have gone up dramatically; in fact higher than the inflation rate, as a result of positive macro-economic indices. As such, they are reluctant to grant servitudes.

A study undertaken by Cigre (1986) which set out to determine the environmental impacts of powerlines, revealed that progress that is made during the transmission line construction phase is directly related to the level of interaction and cooperation among all the stakeholders. Cigre's (1986) study highlighted the inefficient public participation processes during the Environmental Impact Assessment phase as one of the major factors that contribute to project delays. It is imperative that public participation processes are conducted throughout the life cycle of a powerline in order to retain good relations between the power utility and the landowners. Anxieties and objections relating to the granting of servitudes for development are a result of a lack of knowledge. Landowners are caught by surprise when they see large pieces of machinery on their properties and only then do they realise the nature of the impacts

that they will suffer (Cigre, 1986). Failure to communicate these aspects and associated impacts results in landowners prolonging the process of servitude acquisition and also delaying the actual construction process. Cigre (1986) found that low levels of public participation, a lack of knowledge and poor communication are three of a number of problems that may result in poor relations between landowners and developers, thereby hindering the process of servitude acquisition.

Woods (2003) indicates that the objective of public consultation and participation is to improve environmental decision-making by identifying possible (or “potential”) impacts and attempting to mitigate them. Such an approach serves to identify and prevent environmentally-unacceptable developments from an early stage. In order to fully evaluate the environmental impact of a development, the views of the Interested and Affected Parties likely to be affected by the development must be obtained. This is particularly appropriate as the area around which the development will be undertaken is best known by its inhabitants. (Interested and Affected Parties include people who may act on behalf of the environment; even if the development does not affect them directly (e.g. the powerline does not pass through their properties). An example would be in the case of an area proposed for development which may be historically significant and might need to be preserved for future generations. Prior knowledge of such factors may assist the proponent to make informed decisions and in turn to save time and money.

Although public participation processes are frequently seen as ineffectual by participants, costly and time-consuming by proponents, and inefficient by governments, they need to be undertaken (Stewart and Sinclair, 2007). They are a means of communication between the developer and the public, and between the environmental authorities and the local communities. In Egypt, the methodology employed for public participation is through public hearings during the scoping stages, and public disclosure after the submission of the draft Environmental Impact Statement. This study concluded that this method of public participation presents limitations in that not all Interested and Affected Parties and local communities are able to raise issues. Public participation is restricted to those who attend the two hearings and who often might not represent the majority of the Interested and Affected Parties (El-Sayed, 2009). This study highlighted the fact that poor public

participation processes manifest as problems when negotiating for land. The owners of the land are likely to use negotiations as an avenue to raise their issues as they might not have been awarded adequate time to raise those issues during the two hearings. This will in turn delay the process of servitude acquisition (El-Sayed, 2009).

Chaves and Bernal (2008) indicate that in Mexico, the public participates in debates only after the Environmental Impact Assessment has been completed and submitted by the developer for approval. This consultation often occurs in the form of meetings, where the public present their observations of the project and scrutinise the Environmental Impact Assessment Report. A decision to grant authorization is then taken after the meeting has been held. This study revealed that Interested and Affected Parties view this system as flawed as it does not address the needs and concerns of the public and ignores knowledge of local conditions, circumstances and social preferences. The developer then faces the challenge of having to address the concerns of the Interested and Affected Parties at the meeting only after the Environmental Impact Assessment has been conducted. Chaves and Bernal (2008) assert that the Interested and Affected Parties therefore feel that little consideration is given to their input concerning the development since the developer completes the Environmental Impact Assessment without consulting them. This problem of ineffectual public participation extends to the process of servitude negotiations, whereby the owners of the land where the development is to take place retaliate during this stage of the life cycle of the powerline by denying the developers the servitudes that they require. .

Environmental Impact Assessments should be preceded by a Strategic Environmental Assessment. The Strategic Environmental Assessment is a tool used by administrative bodies to incorporate environmental impacts into strategic decision-making on a macro-scale (Koorneef *et al*, 2008). It applies more specifically to strategic decisions in governmental policies, plans and programmes. Similarly, the expansion of the Eskom electricity grid and capacity increase is part of South Africa's Integrated Resource Plan and programme. The government seeks to ensure that all South Africans have access to basic needs, namely food, water, adequate housing, health care and electricity. It is therefore imperative that the government should ensure that the demand for electricity is well communicated and understood in order to facilitate the capacity-increase projects undertaken by Eskom. The need for

development is neither well communicated by the developers nor understood by the public. This process can be facilitated by a good public participation process for transmission powerline projects, as required by the South African law.

South African law comprises of Acts of Parliament, regulations, ordinances and by-laws outlining the legal requirements for the management of activities which may have a detrimental effect on the environment. Among others, these include the activities undertaken throughout the life cycle of a powerline, which may include the Environmental Impact Assessment and public participation processes, acquisition of land, construction, operation and maintenance, and finally, the decommissioning of the transmission powerline. One of the main problems relating to the acquisition of servitudes is non-compliance to the laws of South Africa. It is therefore imperative to identify the different legal requirements that are associated, both directly and indirectly, with the process of servitude acquisition.

The overarching legislation in South Africa is the Constitution of South Africa Act No. 108 of 1996 which states that everyone has the right to an environment that is safe for their health and wellbeing (Department of Justice, 1996). This highlights the need to review the various acts promulgated under the constitution in order to highlight those most pertinent laws that may influence the acquisition of servitudes, as illustrated in Table 3. Emphasis will be placed on those sections of the Acts that are applicable to the activities undertaken throughout the life cycle of a powerline and those that may influence the acquisition of servitudes. These sections of the Acts, if complied with, may improve relations between Eskom and the landowners and minimise conflict between the two parties, in turn promoting the process of servitude acquisition.

**Table 3:** The most pertinent laws relating to the acquisition of servitudes

Name of Act	Relevant Sections	Applicability
<b>National Environmental Management Act 107 of 1998</b>	<ul style="list-style-type: none"> <li>Public Participation and Compulsory Environmental Impact Assessment</li> </ul>	<ul style="list-style-type: none"> <li>Governs the process of Compulsory Public Participation</li> </ul>
	<ul style="list-style-type: none"> <li>Duty of Care and Remediation of Environmental Damage</li> </ul>	<ul style="list-style-type: none"> <li>Puts responsibility on Eskom to control and remedy all environmental degradation caused by the organisation's activities throughout the lifecycle of the powerline.</li> </ul>
	<ul style="list-style-type: none"> <li>Personal Liability for Environmental Offences Committed in the Workplace</li> </ul>	<ul style="list-style-type: none"> <li>Puts liability on Eskom to control and remedy all environmental degradation caused as a result of the organisation's activities throughout the life cycle of a powerline.</li> </ul>
<b>Atmospheric Pollution Prevention Act 45 of 1965</b>	<ul style="list-style-type: none"> <li>Dust Control Sections 21 (1) &amp; (2)</li> </ul>	<ul style="list-style-type: none"> <li>Assigns responsibility to Eskom to manage and control all dust-generating activities. (Dust may be generated during powerline construction activities)</li> </ul>
	<ul style="list-style-type: none"> <li>Vehicle Emissions - Government Notice R1651 of 20 September 1974: Regulations Concerning the Control of Noxious or Offensive Gases Emitted by Diesel-driven Vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>Governs the control and testing of diesel-driven vehicles in areas where Eskom undertakes work and that are declared as priority areas by the minister. (This applies during the transportation of materials and to the workforce during powerline construction)</li> </ul>
<b>National Environmental Management: Waste Act 59 of 2008</b>	<ul style="list-style-type: none"> <li>Waste Management</li> </ul>	<ul style="list-style-type: none"> <li>Prescribes and governs all waste-management activities and practices for all waste generated at sites; based on the hierarchy of control.</li> </ul>
<b>Occupational Health and Safety Act 85 of 1993- Hazardous Chemical Substances: Regulations, GN R 1179</b>	<ul style="list-style-type: none"> <li>Identification of Hazardous Chemical Substances</li> </ul>	<ul style="list-style-type: none"> <li>Ensures the proper identification of all hazardous chemical substances used throughout the life cycle of a powerline.</li> </ul>
	<ul style="list-style-type: none"> <li>Unloading of Dangerous Goods, Government Notice R 225, Regulation 228 &amp; Associated SANS Codes of Practice</li> </ul>	<ul style="list-style-type: none"> <li>Governs the unloading of dangerous goods which have the potential to cause pollution.</li> </ul>
<b>Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947, Section 7(2)(a)(i)</b>	<ul style="list-style-type: none"> <li>Use of Herbicides and Pesticides</li> </ul>	<ul style="list-style-type: none"> <li>Pesticides are largely used during bush clearing when opening up a passage along which the line will be constructed. This Act gives guidance with regards to the use of pesticides.</li> </ul>

<b>Name of Act</b>	<b>Relevant Sections</b>	<b>Applicability</b>
<b>National Water Act 36 of 1998, Section 19</b>	<ul style="list-style-type: none"> <li>Licensing Requirements for Water Use –Section 21</li> </ul>	<ul style="list-style-type: none"> <li>This section of the Act regulates the licensing of all water uses. (Water is used during powerline construction activities (e.g. extraction, storage)</li> </ul>
<b>National Veld and Forest Fire Act 101 of 1998</b>	<ul style="list-style-type: none"> <li>Compulsory Firebreaks: Sections 12 and 13</li> </ul>	<ul style="list-style-type: none"> <li>This section of the Act assigns an obligation to Eskom to ensure that there are firebreaks where powerline construction is taking place in order to prevent the spread of fire.</li> </ul>
<b>National Forest Act 84 of 1998 and Provincial Nature Conservation Ordinances</b>	<ul style="list-style-type: none"> <li>Protected fauna and flora</li> </ul>	<ul style="list-style-type: none"> <li>Vegetation is removed to make the right-of-way for transmission powerlines. This section of the Act regulates the removal of protected fauna and flora.</li> </ul>
<b>National Environmental Management: Biodiversity Act, 10 of 2004 - Section 57</b>	<ul style="list-style-type: none"> <li>Threatened and Protected Species: Regulations and Section 57</li> </ul>	<ul style="list-style-type: none"> <li>Governs the protection of threatened and protected species.</li> </ul>
<b>National Heritage Resources Act 25 of 2000</b>	<ul style="list-style-type: none"> <li>Activities Requiring the Involvement of Heritage Resources Authorities</li> </ul>	<ul style="list-style-type: none"> <li>This section of the Act regulates the protection of heritage resources and the responsibility of Eskom to inform the relevant authorities (e.g. SAHRA) when undertaking activities along a heritage heartland.</li> </ul>
<b>Conservation of Agricultural Resources Act 43 of 1983</b>	<ul style="list-style-type: none"> <li>Utilization and Protection of Wetlands, Marshes, Water Sponges and Water Courses – Government Notice R 1048.</li> </ul>	<ul style="list-style-type: none"> <li>This Act imposes obligations on the “land user”; who can be defined as including owners, possessors, lessees, occupiers, as well as any person who has the right to cut trees or wood on such land or to remove trees, wood or other organic material from such land to ensure the proper use and protection of agricultural resources. If Eskom is undertaking powerline construction activities in these environments, Eskom is considered the “land user” and is obliged to comply with the requirements of this section of the Act.</li> </ul>
	<ul style="list-style-type: none"> <li>Restoration and Reclamation of Disturbed or Denuded Land</li> </ul>	<ul style="list-style-type: none"> <li>This Act regulates activities which may result in the disturbance and denudation of land, while making access routes available, establishing tower positions and other powerline-construction-related activities.</li> </ul>
<b>Promotion of Access to Information Act 02 of 2000</b>	<ul style="list-style-type: none"> <li>Requests from Interested and Affected Parties for Access to Environmental Information</li> </ul>	<ul style="list-style-type: none"> <li>This Act allows all landowners who have granted Eskom servitudes, and those who reside within the area where the development is being undertaken, to access any type of information from Eskom.</li> </ul>

This section of the study was carried out to provide information relating to the general background and context of the study. It has identified, analysed, provided insight and understanding regarding the problems pertaining to servitude acquisition for transmission powerlines. These problems can be summarised as follows:

- Powerlines pose visual impacts;
- Powerlines devalue property;
- Powerlines cause economic instability (loss of grazing land and poor crop yields);
- Historical problems;
- Powerlines affect eco-tourism;
- Lack of knowledge about the biological impacts of powerlines;
- Poor Environmental Impact Assessment and ineffectual public participation processes;
- Ineffectual communication.

This section presented a summary of the legal framework for the most pertinent laws that could influence the acquisition of servitudes for transmission powerlines. The aim here was to highlight the importance of compliance to those sections of the Acts which are applicable to the activities undertaken throughout the life cycle of a powerline. The next section of this study describes the life cycle of a powerline, lists the different social interactions that take place in the life cycle and describes each social interaction.

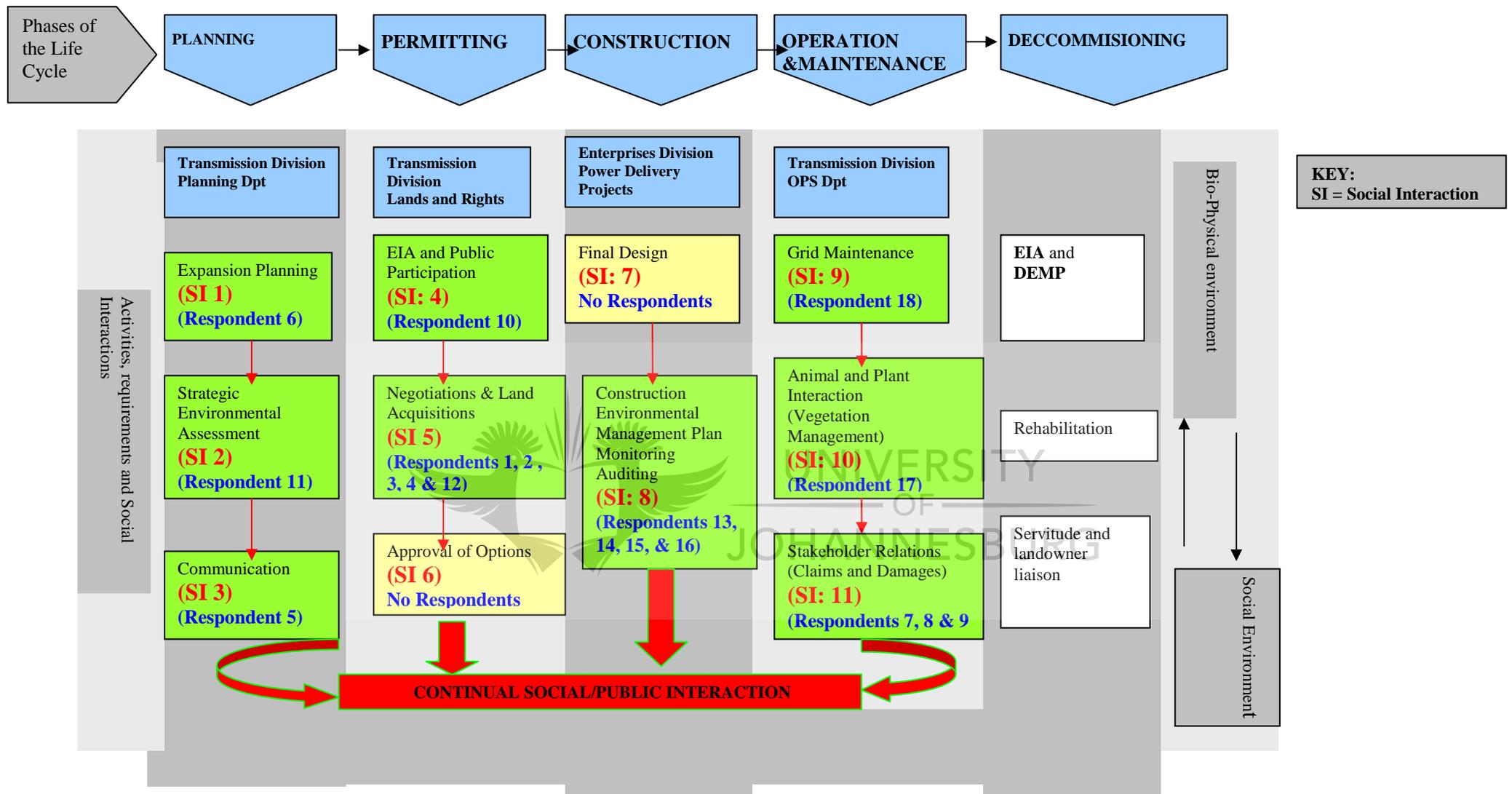
## **5: LIFE CYCLE APPROACH TO A TRANSMISSION**

### **POWERLINE**

*It was shown in section 4 that the interactions between Eskom and the public that lead to poor relationships prevail throughout the life cycle of a powerline. In this section, the life cycle of a powerline is defined in more detail and areas where conflict may arise are highlighted. Furthermore, this section of the study identifies the different instances of social interaction between Eskom and landowners, based on a transmission powerline life- cycle approach.*

All projects go through a life cycle. In general a forum, a life cycle is a process of planning, controlling and monitoring an activity, process or product from its inception through to its completion (Sousa, 2002). In the same way, powerline construction projects also go through the various phases of a life cycle. In order to cover the whole spectrum of the interactions that may exist among the stakeholders during the process of acquiring transmission powerline servitudes, the life cycle of the powerline is used as a basis for the study. This ensures that all the stakeholders in the life cycle are identified, and that all of the links between the different phases of the life cycle and the associated social interactions for each phase are determined. The life-cycle approach makes it possible to identify the various problems pertaining to the acquisition of servitudes for transmission powerlines, as these problems emanate from the different phases of the life cycle of a powerline.

Wideman (2004) claims that it is imperative to follow through the process of the life cycle according to the phases that a transmission line passes termed “gates”. These gates are milestones which need to be reached and reported on during the “handover” phase as the next life cycle phase is entered. These gates can be used to pro-actively identify the problems that may arise as the project progresses, and serve to assist the project team to plan accordingly. Figure 7 (page 28) is a schematic diagram of the life cycle of a powerline, highlighting the respective social interactions between Eskom and the Interested and Affected Parties throughout this life cycle.



**Figure 7:** The life cycle of a powerline, highlighting the respective social interactions between Eskom and the Interested and Affected Parties throughout this life cycle. (Adapted from Vosloo, 2004)

## **5.1 Stages in the life cycle of a Powerline**

### **5.1.1 Planning a Powerline**

Figure 7 (page 28) is an illustration of planning, the first phase in the life cycle of a powerline. This phase focuses on the concept stage of a life cycle and consists of three instances of social interaction between Eskom and the Interested and Affected Parties. The instances of social interaction are colour-coded in green and shown by the letters SI and a number (e.g. SI: 2). During this phase, an expansion plan, as discussed in 5.1.1.1, is developed, followed by a Strategic Environmental Assessment, based on the expansion plan, as described in 5.1.1.2. There is continuous communication throughout these instances of social interaction, as indicated in 5.1.1.3.

#### **5.1.1.1 Expansion Planning**

Figure 7 (page 28) shows that expansion planning is the first phase in the life cycle of a powerline. This is the first instance where problems pertaining to the acquisition of servitudes for transmission powerlines may emerge. It is during this phase that the need for the expansion of the electricity network is established, that a plan is developed, and where the first signs of social interaction manifest themselves -since the expansion plan needs to be shared with the Interested and Affected Parties. The basic tenet for the development plan is the demand for electricity. The responsibility of planning the expansion of the Eskom electricity grid rests with the Expansion Planning Department. Until recently, there was no comprehensive 10 Year Plan in operation, and expansion plans were not submitted for scrutiny and approval in the public domain. Failure to communicate the plan and also to focus on the demand for electricity resulted in a lack of knowledge in the public domain, with the result that the Interested and Affected Parties did not realise the need to grant Eskom servitudes.

#### **5.1.1.2 Strategic Environmental Impact Assessments**

Over the years, Strategic Environmental Assessments have been widely recognized by governments and development stakeholders as a valuable component of the sustainable development process (Alshuwaikhat, 2004). This tool applies more specifically to strategic decisions in governmental policies, plans and programmes. It can be defined as the formalised, systematic and comprehensive process of evaluating

the environmental impact of a policy, plan or programme and its alternatives, including the preparation of written reports on the findings of the evaluation, and applying the results in publicly-accountable decision-making processes (Alshuwaikhat, 2004). Strategic Environmental Assessments are conducted once the need for the expansion of the electricity network has been established. This process can provide the information concerning the form of expansion that is required in terms of the demand for electricity (power station vs. transmission powerlines). As shown in figure 7 (page 28), a Strategic Environmental Assessment embodies the second instance of social interaction between Eskom and the Interested and Affected Parties. Failure to conduct this process correctly may result in uninformed decision-making and therefore causing problems between Eskom and the Interested and Affected Parties.

Alshuwaikhat, (2004) indicates that Strategic Environmental Assessments can solve Environmental Impact Assessment failures, especially in developing countries. Since such an assessment focuses on strategic decision-making, Strategic Environmental Assessments can assist in identifying the greatest need for development and therefore establish strategic reasons for expansion which can be communicated to the public. Since social interaction also takes place during this phase, the Strategic Environmental Assessment can also be used as a platform for public participation, thereby gaining greater insights from the public and using that information to minimise conflict.

Strategic Environmental Assessments have been carried out voluntarily since their inception. Although there are similarities between Strategic Environmental Assessments and Environmental Impact Assessments, several differences to distinguish the two from each other also exist. Strategic Environmental Assessments are needed to complement the limitations posed by Environmental Impact Assessments. In 2009, Strategic Environmental Assessments had not yet been regulated in South Africa. It is imperative that it should be implemented in order to allow considerations for a wider range of possible alternatives and the associated mitigatory measures than at a later stage in the decision-making processes (Von Seht, 1999). Eskom's business plans, particularly those emanating from the Transmission division are making provision for these Strategic Environmental Assessments, with

the first one planned for 2010 (Havenga, 2010, Personal Comment). This decision-making process should also include the public and be conducted in tandem with expansion planning.

### **5.1.1.3 Communication**

Figure 7 (page 28) shows that communication is one of the important aspects in the life cycle of a powerline and one of the instances facilitating social interaction. The social interaction that takes place during communication is ongoing. Communication also forms part of the planning process and is another point of social interaction between Eskom and the public.

### **5.1.2 Permitting**

Permitting is undertaken after a strategic decision has been taken as to the type of expansion that is needed. This occurs after the planning phase of the life cycle, as shown in figure 7 (page 28). It involves exercises in conducting Environmental Impact Assessments and public participation meetings for the proposed project, as discussed in paragraph 5.1.2.1, negotiations for land required for the erection of transmission powerlines, as described in paragraph 5.1.2.2., and the approval of options for the land thus acquired (Lands and Rights Tender Committee), as explained in paragraph 5.1.2.3.

#### **5.1.2.1 Environmental Impact Assessment and Public Participation**

Public participation can be defined as a communicative process that includes a critical exchange between officials from the Department of Environmental Affairs and proponents of the cause, regulators and members of the public (Diduck *et al.*, 2007). This instance refers to that part of the process during both the Basic Assessment and Scoping-and-Environmental Impact Assessment processes, in which the public, including Interested and Affected Parties, are given an opportunity to comment on or raise issues relevant to specific matters (Department of Environmental Affairs and Tourism & Development Planning, 2007). As shown in figure 7 (page 28), the public participation process is undertaken during the Environmental Impact Assessment process in order to introduce the project to the communities prior to the request of the negotiators for the land. The success and failure of the public participation process

directly affects the acquisition of servitudes as it is in this instance that issues are tabled and resolved. If not resolved to the satisfaction of those raising them, conflict could arise. . As the desire for the involvement of the public in the global decision-making process increases, developers are set on a course to ensure that public participation is conducted efficiently (Tyler, 2003).

According to the Department of Environmental Affairs and Tourism (2006), public participation is a process whereby potentially Interested and Affected Parties are given an opportunity to comment on, or raise issues relevant to the application. Okello *et al* (2009) indicate that there are numerous definitions of public participation, and agree that public participation is an interactive process that involves communication, listening, consulting, and engaging and partnering with the public as stakeholders to establish and deliberate on areas of agreement and disagreement for the sake of decision-making.

Stewart and Sinclair (2007) indicate that public participation processes are frequently regarded as ineffectual by participants, costly and time-consuming by proponents, and inefficient by governments. However, this is not the case in South Africa, which requires public participation meetings to be conducted for developments to be initiated. Prior to the enactment of the National Environmental Management Act, Act 107 of 1998, the Environment Conservation Act, Act 73 of 1989, was the overarching piece of legislation which applied generally to all environmental matters in South Africa. Environmental Management was governed by the Environmental Conservation Act of 1989. Public participation was required by the Environmental Conservation Act of 1989; however, it did not stipulate how this should be carried out, with the result that most developers did not conduct a comprehensive public participation process (Department of Environmental Affairs and Tourism, 1989 and Department of Environmental Affairs and Tourism, 1998). In 1998, South Africa then enacted another overarching law which repealed sections of the Environmental Conservation Act, namely the National Environmental Management Act 107 of 1998 (Department of Environmental Affairs and Tourism, 1998). This law provides further insights into the concept of sustainable development in South African law, even though the meaning of the concept in International Law is disputed and the subject of much debate (Murombo, 2007).

Eskom had to adopt and comply with the requirements of this act in all the developments that the utility undertook, and subsequently drafted a *Procedure for Public Participation* in 2005. Reddy *et al* (2005) assert that one of the objectives that Eskom has adopted in respect of public participation is to reduce conflict by identifying ongoing issues at an early stage and by working through these issues in order to find acceptable solutions. The Eskom stakeholder departments which have been identified for involvement in the public participation process are Land and Rights, Planning, Environmental Management and Communications. The *Guideline to Environmental Impact Assessment Regulations*, compiled by the Department of Environmental Affairs and Tourism (2006), indicates that South African legislation requires that the public be given an opportunity to comment on authorisations affecting the environment. The members of the public who are directly involved are termed Interested and Affected Parties. They may act on behalf of the environment; even if the development does not affect them directly (e.g. a powerline does not pass through their property). It is a fundamental societal necessity that the public participation process should be conducted in accordance with the minimum requirements as set out in Regulations 4 and 5, and that it also is according to the plan of study for the Environmental Impact Assessment for that particular development.

It should be borne in mind that in 2010, The Department of Environment, formerly known as and referred to in this study as the Department of Environmental Affairs and Tourism, published an amended version of the *Environmental Impact Assessment Regulations*. These regulations are only applicable to projects applied for after the date of publication and enforcement. Those projects, authorised under the previous regulations, are still valid, and the same conditions as those stipulated in the *Environmental Authorisation* should continue to be applied. Furthermore, applications that were submitted under the previous *Environmental Impact Assessment Regulations* are still valid and will be assessed according to the regulations under which the applications were made. This is however not discussed extensively in the study, (Department of Environmental Affairs and Tourism & Development Planning, 2007).

### 5.1.2.2 Negotiations and Land Acquisition

As illustrated in figure 7 (page 28), these two functions are actually processes whereby Eskom negotiates for a piece of land in order to erect powerlines as a consequence of public participation meetings and the subsequent approval from the authorities. Negotiations and land acquisition are carried out by the Lands and Rights Department within the Transmission division of Eskom. The negotiators usually liaise with the landowners, chiefs and/or communities in order to negotiate for the servitude. The outcome depends on the owner of the land, in that in some instances the land belongs to a community which is represented by the Chief's Council which might not agree with the consideration for the land that Eskom is offering. This delays the commencement of the project and further impacts negatively on the time line of the expansion plan. Wideman (2004) defines negotiations as a process of ensuring and assessing that all of the required resources are available and that the project is neither delayed nor cancelled. It is therefore imperative that this process be carried out efficiently and effectively.

The negotiation process could be extensive, running into years, and involves the following phases:

- The initial meeting with the landowner
- The signing of an 'option' to secure a servitude (this indicates that the owner will accept that the transmission powerline will cross his property, subject to conditions to be finalised in the negotiation of the servitude agreement) an option is valid for one year.
- Once the route has been confirmed (i.e. options signed with the upstream and downstream landowners), the servitude agreement is finalised with the individual landowners. This agreement sets out the conditions for the establishment and operation of the servitude, and is site-specific (different landowners may have different requirements). Compensation payments are made when the servitude is registered at the Deeds Office.
- Once the construction has been completed and the land rehabilitated to the landowner's satisfaction, the landowner signs a 'Final Release' certificate. Until such time, Eskom Transmission remains responsible for the condition of the land.

- Once the clearance certificate has been signed, the responsibility for the line and the servitude is handed over to the Eskom's Regional Transmission Office. Prior to this, the National Office is responsible for the process (Eskom, 2006a).

### **5.1.2.3 Approval of options for servitudes**

The Tender Committee is responsible for the approval of options to acquire servitudes. Figure 7 (page 28) shows that this process follows upon the negotiation process, because it is the Tender Committee which approves the option payments after negotiations have been concluded with the owners of the land. These options refer to applications for payment for granting Eskom servitudes. The committee decides on the market-related amount of money to be paid to the land owner in return for granting Eskom the servitude. The payment is calculated according to the market value of the land and this includes everything: land, infrastructure and loss of income. A maize farmer would be paid according to the value of the land and the profits lost. "Profit" in this study refers to the money not realised as a result of no sale of crops along the servitude within the boundaries of the farm.

### **5.1.3 Construction**

As illustrated in figure 7 (page 28), the construction of a powerline occurs after the land has been acquired and legal and regulatory requirements have been met. This phase includes the finalisation of the design of the powerline structure, as described in paragraph 5.1.3.1, the actual construction of the line, and the implementation and monitoring of the Construction Environmental Management Plan, as explained in paragraph 5.1.3.2. It is during this actual construction phase of the powerline that intensive social interaction occurs, as discussed in paragraph 5.1.3.3.

#### **5.1.3.1 Final Design of the Powerline Structure**

The final design of a powerline plays an integral role in the acquisition of a servitude. The final design determines the impacts that the line will have on the environment, and furthermore determines the area of land that is required for the powerline. Generally, powerlines are constructed in a straight line; however, in some instances deviations are integrated into the final design owing to factors such as the landowner's request or special conditions. It is for this reason, amongst others, that the design is

finalised after the land has been granted (in figure 7 on page 28) and the terrain on which the structure is to be erected is evaluated and confirmed. The type of tower gives rise to problems in that each structure presents different impacts. A self-supporting lattice tower will have a smaller impact on the environment as opposed to a guyed Vee-tower. This is due to the fact that a self-supporting lattice tower requires four individual closely-spaced foundations, while a guyed V-tower requires only one foundation with four guy wires/ropes that are on a larger footprint. Failure to communicate these impacts to the landowners may result in conflict and, therefore, resistance to the granting of servitudes in the future (Cigre, 1986).

### **5.1.3.2 Construction Environmental Management Plan Monitoring**

Figure 7 (page 28) shows that these activities occur during the construction phase of the life cycle of the powerline which is one of the phases where the most social interaction takes place. The construction phase embraces the execution of the Construction Environmental Management Plan conditions. The monitoring of this phase covers the construction, monitoring and auditing of the transmission powerline, and involves the reporting of non-conformances and deviations from legal and other requirements. It is the responsibility of the client, in this case Eskom, to ensure that the Construction Environmental Management Plan conditions are adhered to. The purpose of the Environmental Management Plan is to provide environmental management specifications (Department of Environmental Affairs and Tourism, 1998c). The interaction between Eskom and the landowner is at its maximum during this phase of the life cycle of the powerline and inappropriate behaviour during this phase will affect relations between Eskom and the landowners and therefore their reluctance to grant Eskom servitudes in the future.

### **5.1.4 Operation and Maintenance**

Figure 7 (page 28) shows the operation and maintenance phase that occurs after the construction of the powerline has been completed. It is during this phase that there is continuous interaction between Eskom and the landowners. The interaction that takes place are mainly during the maintenance operations (e.g. line fault repairs and vegetation management, as discussed in paragraphs 5.1.4.1 and 5.1.4.2 respectively). It is also during this phase of operation and maintenance that a significant number of claims are lodged by landowners, as described in 5.1.4.3.

#### **5.1.4.1 Grid Maintenance**

The manner, in which Eskom communicates that it is planning a site visit to a powerline for the repair of faults and other maintenance functions, also plays a role in the acquisition of servitudes. Failure to adhere to the access agreement conditions and arriving unannounced for maintenance operations on the powerline are also issues of concern. There is constant social interaction between the grid maintenance teams and the landowners as the maintenance and operation of the powerline will continue for the entire life of the powerline.

#### **5.1.4.2 Vegetation Management and Animal Interactions**

These activities and interactions occur during the construction, operation and maintenance phases in the life cycle of a powerline. They also represent another point of social interaction, as illustrated in figure 7 (page 28). The Endangered Wildlife Trust has been contracted to monitor and manage these particular aspects in the life cycle of the powerline. Eskom Transmission has developed a procedure for the proper management of vegetation, stipulating exactly how the vegetation should be managed. Being yet another instance where social interaction takes place, this area could hold the potential for possible conflict between Eskom and the Interested and Affected Parties. Failure to keep to the requirements of the *Construction Environmental Management Plan* (CEMP) and maintenance agreements could be the cause of the conflict.

#### **5.1.4.3 Customer and Stakeholder Relations**

This aspect refers to the interaction between Eskom, its customers and stakeholders. It is at this stage that, amongst others, damage may be caused on a landowner's property. The most common claims that Eskom has had to face are damages caused by fires and by electrical poles. The party responsible for the damage can always be traced back to the type of activity that gave rise to the damage in the first place. For example, damage by fire, caused by construction personnel, is payable by Eskom's Enterprises division, while damage caused by distribution lines (e.g. a fence falling over) is payable by the Distribution division. However, because all the parties who cause the damage are part of the Eskom workforce, and no distinction can be made among the different divisions within the organisation, the landowners merely expect their payments to be made from Eskom as an umbrella organisation and not from the

responsible division *per se*. The landowners do not distinguish between the different divisions - which affects the relationship between them and the negotiators. Thus, the process of acquiring servitudes for future developments is often strained; hence, the need to improve relations between the parties.

Figure 7 (page 28) shows that interactions with the Interested and Affected Parties occur throughout the life cycle of a powerline. It is during these interactions that problems arise and are carried through, to manifest in all phases of the life cycle of the powerline. It is possible that in their turn, the problems could negatively affect the ability of Eskom to acquire servitudes for powerlines.

This section of the study served to present the life cycle of a transmission powerline, identifying also the different stages in which social interaction between Eskom and Interested and Affected Parties might occur. This section also identified the different stakeholders that play a part in the life cycle of a powerline, in preparation for the selection of parties to be interviewed in order to collect data (as discussed in section 6).



## **6: DATA COLLECTION AND RESEARCH**

### **METHODOLOGY**

#### **6.1 Data Collection**

*This section seeks to explain the research methodology that was employed to complete this minor dissertation. Also discussed, are the methods used to collect and analyse data in order to complete the research. These methods include a review of the literature and interviews. Descriptions are given of the criteria used for the selection of participants that were interviewed, the tools and methods used to conduct the interviews, and lastly, the shortcomings of the data.*

##### **6.1.1 Data needed to undertake the study**

In order to conduct this research, the following data were needed:

- Literature gleaned from previous research projects concerning problems pertaining to the acquisition of servitudes for transmission powerlines
- Interviews using questionnaires.

##### **6.1.2 Methods used to collect data**

Relevant literature sources revealed by other researchers were reviewed in order to gain insights into and to gather information relating to the problems pertaining to the acquisition of servitudes for transmission powerlines. This literature review was divided into two parts: firstly, a review of previous research related to servitude acquisition for transmission powerlines and the associated problems; and secondly, a review of the most pertinent laws relating to the acquisition of servitudes and their associated problems. A review of previous research relevant to this study was undertaken by reading the most relevant literature about the problems pertaining to the acquisition of servitudes for transmission powerlines and by summarising the findings. On the other hand, a review of the relevant laws was undertaken by identifying all the applicable legal requirements, which, if not implemented throughout the life cycle of a powerline, could possibly result in problems in the future

Following the literature review, a life-cycle model of transmission powerlines was developed using literature relating to life cycle models as a reference. This model, based on South African conditions and applicable to Eskom (figure 7 on page 28), was then used to identify the stakeholders, within and outside of Eskom, who play a role in the process of servitude acquisition for participation in the interviews. These stakeholders are closely involved with the process of servitude acquisition and have knowledge about the problems pertaining to the acquisition of servitudes for transmission powerlines (See “Pre-requisites of Participants”).

It must be noted that no landowners were interviewed, owing to the time constraints and the scope of the minor dissertation. It is the opinion of the supervisors of this study that many of the landowners may still be in negotiations with Eskom, with the result that the researcher’s interaction with the landowners could compromise the negotiation process. All the data collected come from the relevant personnel within the different sections at Eskom and outside personnel directly engaged in the acquisition of servitudes. These personnel have had sufficient experience to highlight the problems pertaining to the acquisition of servitudes. The following criteria were used to identify the internal and external stakeholders in the life cycle of a powerline:

- **Pre-requisites of Participants**

In order to be a stakeholder in the process of acquiring servitudes, the following conditions should be met:

- The stakeholder should intervene at some stage/phase in the life cycle of the powerline and share in the social interactions with other stakeholders, as in the case of liaising with landowners and negotiating with them for servitudes.
- The participant should have experience as a role player in the particular phase in which he/she intervenes, as illustrated in figure 7 (page 28).
- The participant should hold the position for a minimum of five years or should have worked in the servitude acquisition environment for a minimum of five years in order to fully and accurately determine the nature of the problems pertaining to the acquisition of servitudes for transmission powerlines which have been brought to his/her attention.

- **Selection of Participants (Stakeholders)**

Owing to the nature of the inquiry for this study, being that of requiring to obtain information from knowledgeable individuals, the respondents were selected purposely. Participants were selected on the basis of their knowledge regarding the problems pertaining to the acquisition of servitudes for transmission powerlines. This technique was useful in that the stakeholders who were known to the researcher assisted her in identifying and locating the other stakeholders who were difficult to locate (e.g. Senior Management) and therefore had a snowballing effect.

Participants were selected on the basis of the roles that they played in the process of servitude acquisition and the fact that the researcher was confident that they would be able to provide full and accurate descriptions of their experiences. Following this, all of the selected stakeholders as per instances of social interaction were identified, as indicated in figure 7 (page 28). Experienced participants were selected. It was possible to obtain a full range of variation in the set of descriptions used in analyzing the problems pertaining to the acquisition of servitudes for transmission powerlines. Furthermore, it proved to be of paramount importance that the selected individuals should all have experienced the problems under investigation and needed to be articulate in order to fully describe their experiences with clarity. The number of participants selected for each stakeholder relation depended on the role that the stakeholder in question played/plays in the subject under investigation.

With an understanding of the life cycle of a powerline and a list of the respective stakeholders playing a role in the life cycle, it was possible to establish a list of instances of social interaction between stakeholders and the public. The objective behind this list was to link those stakeholders identified as role players in the life cycle of the powerline to the different instances of social interaction and to assign them to those instances. This would confirm that such stakeholders do indeed play a role in the life cycle of the powerline and are, therefore, knowledgeable about the problems associated with the acquisition of servitudes for transmission powerlines. A total of 11 instances of social interaction were identified, as indicated in figure 7 (page 28). An example showing the letters, SI, abbreviated for “social interaction”, and a number (1), is shown in figure 7 (page 28). However, only participants from nine (9) instances were interviewed because participants from the other two (2), namely

Approval of Options and Final Design, were unavailable (See figure 7 on page 28). It must be noted, however, that although not all identified stakeholders in the life cycle of a powerline were interviewed, data obtained was saturated (repetition of responses) by the 11<sup>th</sup> interview, therefore justifying the validity of the results.

A set of nine (9) different questionnaires were developed for each instance of social interaction. (See one example of the questionnaire attached as Appendix A on pages 86 to 87.) These questionnaires were divided into three sections, namely:

- Section A: This section comprised background information and was standard throughout all the questionnaires. This section was designed to ascertain whether the participant met the criteria/pre-requisites for participants as prescribed and to establish rapport with the stakeholders.
- Section B: This section also comprised standard questions which were the same in all questionnaires. Section B was designed to achieve the aim of the study. It enquired into the most apparent problems relating to the acquisition of servitudes from the stockholder's perspective. As identified in figure 7 (on page 28) and table 4 (on page 44), both internal personnel from Eskom and personnel external to Eskom, were involved.
- Section C: This section of the questionnaire comprised role- specific questions relevant to that specific instance of social interaction and the role that the stakeholder plays in the process of servitude acquisition. This section was designed to obtain role-specific information from both the internal personnel from Eskom and the personnel external to Eskom who play a role in the life cycle of a powerline, as indicated in figure 7 (page 28).

These questionnaires were used as a basis for conducting the interviews. In order to conduct the interviews, the researcher firstly requested and obtained permission from the interviewees to:

- conduct one-on-one interviews with interviewees;
- use a tape recorder to record voice data;

- keep a record of all notes made during the interview;
- develop a transcript of the interview;
- acknowledge the participants in the report.

The interviews were conducted in two ways, through one-on-one interviews and through mailed questionnaires, with the stakeholders identified as key role-players in the life cycle of the powerline. Owing to the fact that they were not available and that they also faced time constraints, two sets of stakeholders, namely the Environmental Control Officers, responsible for landowner liaison, and the Team for Monitoring the Construction Environmental Management Plan and Communications were interviewed via mailed questionnaires. On the other hand, the rest of the participants were interviewed through one-on-one interview sessions. These were conducted with one participant at a time, except in one instance where three participants from the same department were interviewed simultaneously (This was recorded as three separate interviews in that the interviewees had different views about the same aspects in some cases). Each interview with each individual lasted between one and two hours in order to establish rapport and an atmosphere of trust with the participants. Each participant was informed about the justification for the study, the researcher's motives and the objectives of the study.

As illustrated in table 4 (page 44), a total of 18 participants were interviewed. Twelve (12) of them were from Eskom, while six (6) were outsiders, namely the Environmental Control Officers, the Animal and Vegetation Management Officer, and the Environmental Assessment Practitioner. However, all proved to be key stakeholders in the acquisition of servitudes and are currently conducting work on behalf of Eskom. Although landowners also play an integral part as role-players in the acquisition of servitudes, they were excluded from the study owing to its scope being limited to that of a minor dissertation. There are currently over 20 000 landowners registered on the Eskom database. To reach a representative sample of the landowners would necessitate considerable resource inputs and time, therefore. It was for this reason that the landowners were considered to fall outside the scope of this minor dissertation. Future studies enquiring into the problems pertaining to the acquisition of

servitudes for transmission powerlines from the landowner's perspective should therefore be undertaken.

Table 4 (page 44) also reveals that the number of stakeholders interviewed differs per instance of interaction. This can be attributed to the fact that the level of social interaction between the stakeholders differs according to the role they play in the life cycle of the powerline. The main thrust of the interviews was aimed at negotiators and environmental control officers since they are intimately involved with the landowners, and, as a result, have valid opinions on the problems pertaining to the acquisition of servitudes for transmission powerlines. During the process of servitude acquisition, the negotiators constitute the first level of stakeholders, displaying the highest level of interaction with the landowners, .On the other hand, the environmental control officer liaise with the landowners throughout the construction phase of the powerline's life cycle. In order to enhance the honesty and openness of the interviews, it was decided that none of the names of the interviewees would be revealed.

**Table 4:** Number of role players interviewed for the study per instance of social interaction.

Instance	Number of Stakeholders Interviewed	Organisation
Grid Expansion Planning	1	Eskom
Strategic Environmental Assessment	1	Eskom
Communication	1	Eskom
Customer and Stakeholder Relations – Insurance	3	Eskom
Servitude Negotiations	5	Eskom
Grid Maintenance	1	Eskom
Public Participation	1	External
Environmental Control Officers	4	External
Vegetation and Animal Interaction	1	External
<b>TOTAL</b>	<b>18</b>	

Owing to the nature of this research, being that of enquiring into a highly subjective everyday experience of individuals, it is appropriate that a qualitative method of enquiry be employed. This method attempts to obtain a deep-seated understanding of the problems pertaining to the timeous acquisition of servitudes for transmission

powerlines, in turn aiding in the development of methods to minimise conflict between Eskom and the landowners. The end result would then be to improve the process of acquiring these servitudes.

Henning *et al* (2004) asserts that variables are usually not controlled in qualitative studies; it is exactly this freedom and natural development of action and representation that this study sets out to capture. This study seeks to understand and also explain the problems pertaining to the acquisition of servitudes for transmission powerlines, by using data collected through interviews and from literature. By conducting unstructured interviews, the researcher attempts to limit the boundaries that a predetermined instrument, such as a structured questionnaire, would present in the study.

In summary, the interview took on the form of a semi-structured and open-ended enquiry using questionnaires as the guidelines. A digital tape recorder was used to record the data which were in turn transcribed into written notes. The analysis was undertaken after the transcription of all interviews had been completed. The interviews were either conducted on a one-to-one basis at the workplace, or via mailed questionnaires, which were received electronically.

### **6.1.3 Shortcomings of the Data**

The shortcomings of the data were specifically related to the two sets of mailed questionnaires which generated limited information about the problems pertaining to the acquisition of servitudes for transmission powerlines. The interviews in this case were based on a question-and-answer format and did not allow for follow-up questions to be posed for clarification purposes. This meant that the interview was not interactive.

Another shortcoming concerning the nature of the data obtained was that this study constitutes a minor dissertation, with the result that only a small number of stakeholders were selected for the sample. A larger number of respondents would have been preferable. Owing to the time and resource constraints, it was decided to use Eskom personnel in the respective divisions within the Eskom organisation, as well as those external stakeholders who are generally intimately involved in the

process of servitude acquisition, since all of these officials are knowledgeable and able to provide a comprehensive delineation of the relevant problems from their various perspectives. There is a need for future studies to consider an objective view of the landowner's perspective on the problems pertaining to the acquisition of servitudes for transmission powerlines.

## **6.2 Methods used to analyse the Data**

Data analysis is not merely the translation of data, but rather the interpretation of data. This is a difficult process in that one whole transcription of a collection of transcripts cannot be analysed at the same time; it must be broken down into controllable components and codes or themes. Because this is a qualitative study, coding was the method of analysis selected for this study. The purpose of coding this qualitative data was to take the extremely large number of words and to categorise them into controllable chunks (Hubbard and Power, 1999).

Since one of the aspects covered by this study focuses on the life cycle of a transmission powerline, use was made of a life-cycle model approach, as illustrated in figure 7 (page 28), to analyse the data collected through the questionnaires. The questionnaires used during the interviews with the respective stakeholders, who were selected from all the phases of the life cycle of the powerline, were all put together and the information thus collated. The responses from these interviews were then summarised. Following this, written notes were made from the audio recordings taped during each interview in order to capture all the information that was given by the respondents, apart from that already captured on the questionnaires. Two sets of response sheets were generated, one being the questionnaire response sheet and the other, the transcript generated from the audio recording for each respondent. The two documents were then compared in order to ascertain that no information had been omitted. The researcher then created a phrase-processing file for the interviews in order to capture those phrases or words that were the same and those that bore the same meaning. All recurring themes were clustered under one theme and then arranged into codes. These codes were then narrowed down to a total of 15 problems.

The responses from Section A of the questionnaire were consolidated and reproduced in table 6 (page 50). The notes from responses to Section B of the questionnaire were interpreted and summarised into Section B, questions 1-5 (pages 51-63), while the responses for Section C were transcribed into written notes and attached as Appendices. A step-by-step illustration of the analysis of the data collected during the interviews is presented in table 5.

The following steps, as illustrated in table 5, were followed during the analysis of the data collected during the interviews:

**Table 5:** Steps followed during data analysis

<b>Step 1</b>	Researcher collated all written data collected.
<b>Step 2:</b>	The researcher listened to the data recordings without making written notes of the recordings
<b>Step 3:</b>	The researcher listened to the data recordings for the second time, making notes of the responses of the interviewees.
<b>Step 4:</b>	The researcher listened to the recordings for the third time, in an attempt to make written notes of the responses. This was done in order to highlight words that could be used for the coding of responses into thematic problems.
<b>Step 5</b>	The researcher compared the written notes taken during the interviews and the transcription generated from the audio recording
<b>Step 6:</b>	The researcher coded all words of the same meaning in all the responses to questions of a similar nature (Questions in Section B) in order to develop codes for the problems pertaining to the acquisition of servitudes for transmission powerlines.
<b>Step 7:</b>	Common themes of problems were noted and synthesised from these themes

Section 7 presents the results obtained during the study through the review literature and data collected during the interviews. It gives a clear description of the findings.

## 7: DISCUSSION OF RESULTS

*Section 7 includes a discussion of the findings revealed by the study. Of particular relevance to the problems pertaining to the acquisition of servitudes for transmission powerlines and to those problems that became apparent during the interviews, is the discussion of the data collected during the literature review. A summary of possible problems that could emerge from a failure to comply with the legal requirements, as stipulated in the South African legislation, concludes this section.*

The literature review and the review of the laws most applicable to the acquisition of servitudes for transmission powerlines, as discussed in Section 4, show that the simple solution to acquiring servitudes timeously is not associated only with money. There are also social problems associated with the reluctance of landowners to grant Eskom servitudes for its transmission powerlines. The following problems were identified from the literature review:

- The visual impact of powerlines on the properties on which they are built proves to be detrimental to the aesthetic qualities of the environment.
- Powerlines devalue the properties on which they are built.
- Powerlines generate electro-magnetic fields in areas in close proximity to them.
- Powerlines negatively impact upon agricultural activities such as crop cultivation and grazing.

This section of the study is divided up as follows:

- Section A comprises background information concerning the participants in the negotiating process. The background information is presented in tabular format in table 6 (page 50).
- Section B includes the main questions posed during the interviews to ensure that the main aim and objectives of the study are achieved. Themes for the problems pertaining to the acquisition of servitudes for transmission powerlines were derived from these data and linked to each phase of the life cycle of the transmission powerline (figure 7 on page 28). Recommendations

for future research along these lines were based on the problems that were investigated in this minor dissertation.

- Section C comprises role-specific questions and responses. The role-specific questions and responses are presented in a life-cycle-model approach, with the responses from the first instance of social interaction being presented first (figure 7 on page 28). These responses have been transcribed into written notes and are attached as Appendix B to this dissertation.

A life cycle approach was employed in order to facilitate a better understanding of these social problems. A transmission powerline life-cycle model was developed (figure 7 on page 28) and subsequently used as a basis for the study. This life-cycle model served to assist in the identification of role-players who participated in the interviews as per the methodology employed for this study.

### **Section A: Background Information**

Table 6 (page 50) describes each of the participants in terms of the positions that they held, the number of years of experience spent in those positions, the departments in which they were employed, as well as the total number of participants interviewed in those specific positions. Page 40 shows the pre-requisites or criteria that this researcher chose for selecting the participants. It is indicated in Table 6 (page 50) that eighteen (18) respondents were interviewed. This sample of participants consisted of five (5) Negotiators (Land Acquisition), one (1) Communications Advisor, one (1) Expansion Planner, four (4) Environmental Control Officers (ECOs), three (3) Insurance personnel, one (1) Maintenance Advisor, one (1) Strategic Environmental Assessment Practitioner and one (1) person responsible for Animal and Plant Interaction.

All of the participants mentioned above, having gathered experience in the particular phase in which they are playing a role, are role-players in the life cycle of the powerline and are employed in a specific position for a period of approximately five (5) or more years. Furthermore, they are experienced in dealing with problems pertaining to the acquisition of servitudes for transmission powerlines as they are

intimately involved in the life cycle of the transmission powerline (figure 7 on page 28). The departments in which these respondents are employed are also shown in Table 6 in order to highlight the need for the interdepartmental collaboration that is required within Eskom, and as discussed in the recommendations. The conclusion demonstrates that all the respondents, as listed in Table 6 (page 50); meet the criteria required of participants for successfully fulfilling their function.

**Table 6:** Description of the respondents showing the positions held, the number of years of experience and the departments in which they are employed.

<b>Respondent</b>	<b>Position Held</b>	<b>Years of Experience</b>	<b>Department</b>
<b>Male</b>			
Respondent 1 (R1)	Negotiator	20Years	Eskom Land & Rights
Respondent 2 (R2)	Negotiator	20 Years	Eskom Land & Rights
Respondent 3 (R3)	Negotiator	38 Years	Eskom Land & Rights
Respondent 4 (R4)	Negotiator	20 Years	Eskom Land & Rights
Respondent 5 (R5)	Communications Advisor	10+ Years	Eskom Corporate Affairs
Respondent 6 (R6)	Expansion Planning	16 Years	Expansion Planning
Respondent 7 (R7)	Insurance	5+ Years	Eskom Insurance
<b>Female</b>			
Respondent 8 (R8)	Insurance	5+ Years	Eskom Insurance
Respondent 9 (R9)	Insurance	5+ Years	Eskom Insurance
Respondent 10 (R10)	Environmental Assessment Practitioner (EAP)	15 Years	External
Respondent 11 (R11)	SEA Practitioner	10 Years	Eskom Transmission
Respondent12 (R12)	Negotiator (Land Acquisition)	10+ Years	Eskom Lands &Rights
Respondent 13 (R13)	ECO 1	5 Years	Nature Conservation Corporation
Respondent 14 (R14)	ECO 2	5 Years	Nature Conservation Corporation
Respondent 15 (R15)	ECO 3	5 Years	Nature Conservation Corporation
Respondent 16 (R16)	ECO 4	5 Years	Nature Conservation Corporation
Respondent 17 (R17)	EWT	10 Years	Endangered Wildlife Trust
Respondent 18 (R18)	Grid Maintenance	14 Years	Eskom Transmission
<b>Total</b>	<b>18</b>	<b>N/A</b>	<b>N/A</b>

## **Section B: Standard Questions**

For this section, all respondents were asked the same set of questions. The purpose was to set the baseline for the interview and to establish rapport. This section served

as an introduction to the rest of the interview. It must be borne in mind that the participants that were chosen are knowledgeable and experienced in respect of the problems pertaining to the acquisition of servitudes for transmission powerlines; hence, the informed nature of the responses for questions 1 to 4 (on pages 51 to 52).

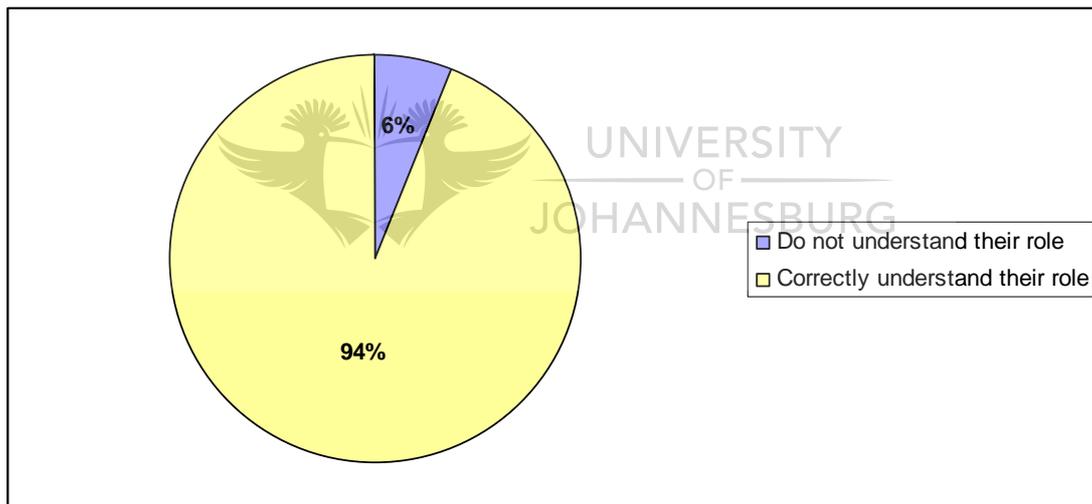
### 1. Where do you fit into the Life Cycle of a Powerline?

All respondents interviewed were found to be knowledgeable and to have an understanding of the phase of the life cycle of the powerline into which they fit.

### 2. What do you understand by servitude acquisition?

All respondents interviewed expressed adequate knowledge and understanding of the process of servitude acquisition.

### 3. What role do you play in the ability of Eskom to acquire servitudes?

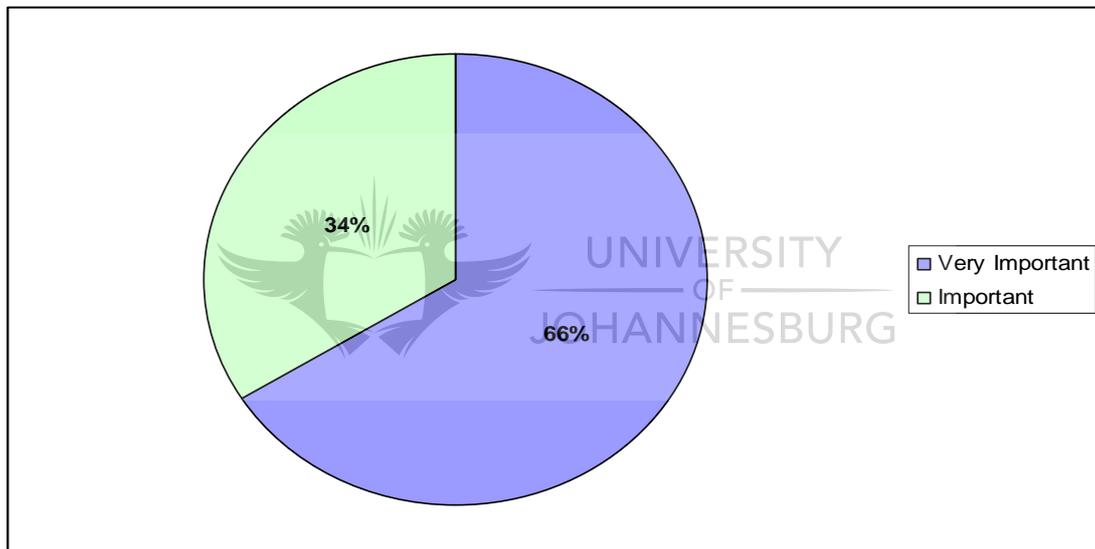


**Figure 8:** A depiction of the respondents' knowledge and understanding of the roles they play in the attempts of Eskom to acquire servitudes.

Figure 8 shows that 94% (17) of the respondents correctly understand the role that they play in the process of acquiring servitudes, while one respondent (6% of the sample) indicated that he/she does not need to play a role in the process of servitude acquisition and that his/her expertise is required only in the operational phase of the powerline. This researcher wishes to indicate that all the stakeholders identified within the life cycle of the powerline do in fact play a role in aiding Eskom in its attempts to acquire servitudes; at the same time, they also contribute to the problems

pertaining to the acquisition of servitudes for transmission powerlines. The role played by the stakeholder is not only a direct one, whereby one negotiates for land, but could also be indirect, through socially interacting with the landowner at different phases of, and throughout the life cycle of the powerline (e.g. interaction during Environmental Impact Assessments while conducting specialist studies to identify areas of environmental and heritage importance). The specialists do in fact have to access the land and need, therefore, to be granted permission for access from the owner of the land. The manner in which a specialist interacts with the owner of the land can either promote or destroy the relationship between Eskom and the landowner.

#### 4. How important is it for Eskom to acquire servitudes timeously?

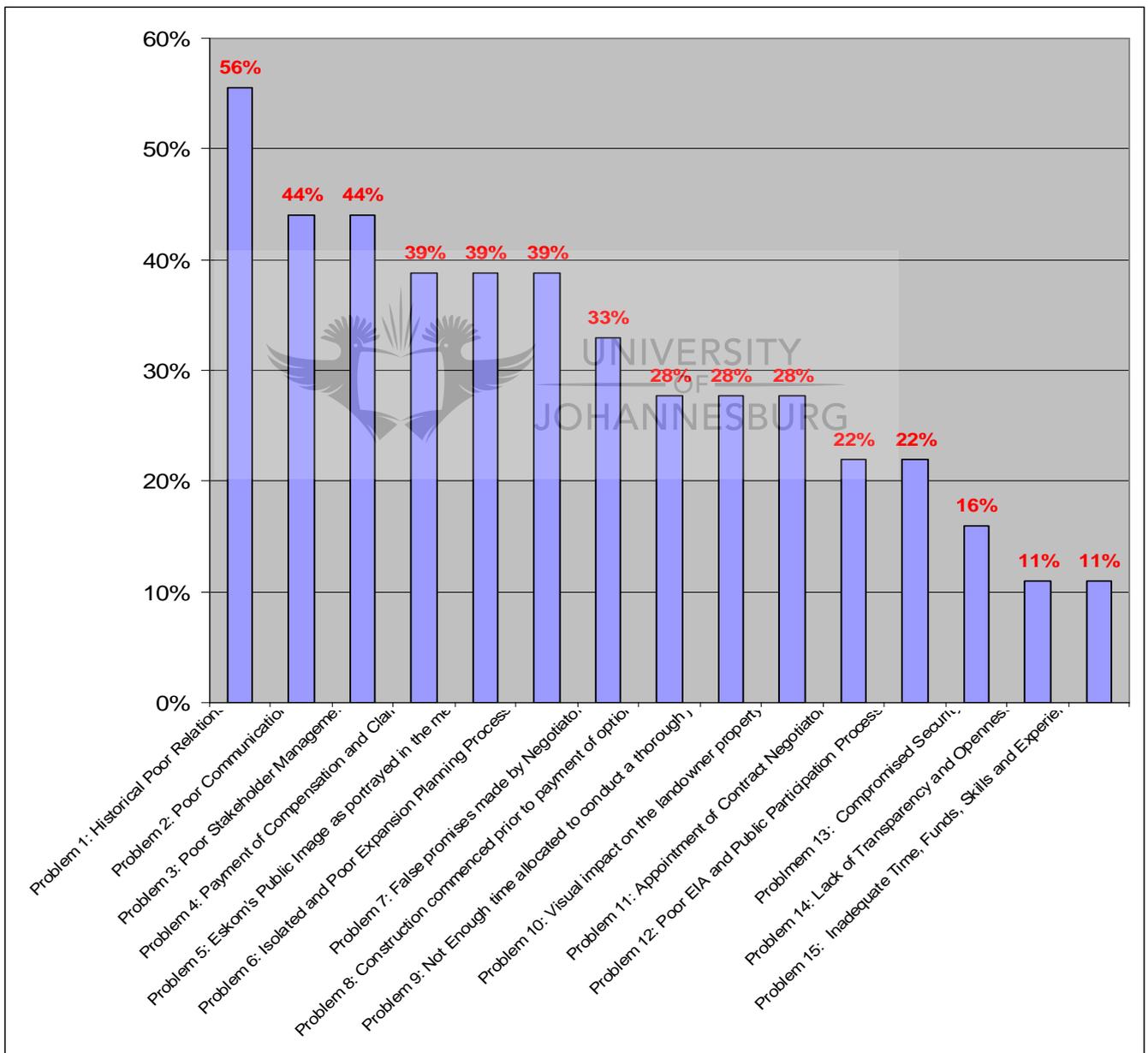


**Figure 9:** An illustration of respondents' views on the importance that Eskom should attach to acquiring servitudes timeously.

Figure 9 shows that 66% of the respondents interviewed indicated that it is of great importance that Eskom should acquire servitudes timeously. On the other hand, 34% asserted that Eskom should acquire servitudes timeously, but did not, however, express a sense of urgency or necessity or positively encourage Eskom to do so. The aforementioned fact indicates that there should be greater efforts in the educational field to emphasise the necessity and desirability for Eskom to acquire servitudes timeously in order to raise the awareness of the public of this crucial requirement for an uninterrupted power supply.

**5. What are the most obvious problems pertaining to the acquisition of servitudes for transmission powerlines, which might give rise to conflict between Eskom and Interested and Affected Parties?**

This was an open-ended question and a number of responses were obtained. These responses were coded into problems pertaining to the acquisition of servitudes for transmission powerlines. Fifteen (15) problems were identified according to the number of words that were similar and the number of words that had the same meaning. These problems are summarised in Table7 (page54) and discussed below:



**Figure 10:** Percentage representation of problems pertaining to the acquisition of servitudes for transmission powerlines.

**Table 7:** Most apparent problems pertaining to the acquisition of servitudes for transmission powerlines.

Respondent	Problem 1	Problem 2	Problem 3	Problem 4	Problem 5	Problem 6	Problem 7	Problem 8	Problem 9	Problem 10	Problem 11	Problem 12	Problem 13	Problem 14	Problem 15
R1	√			√	√		√			√					
R2	√	√		√	√			√	√		√	√	√		
R3	√								√			√	√		√
R4				√	√					√					
R5		√													
R6	√	√	√			√									
R7		√	√		√	√									
R8		√	√	√	√	√									
R9		√	√			√									
R10	√		√						√	√		√	√	√	√
R11			√						√	√	√				
R12			√						√						
R13	√	√		√		√	√	√		√	√	√			
R14	√							√							
R15	√			√			√	√							
R16	√						√	√							
R17	√	√	√			√	√			√	√				
R18				√		√	√							√	
<b>TOTAL</b>	<b>10</b>	<b>8</b>	<b>8</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>2</b>

<p><b><u>LEGEND FOR PROBLEMS</u></b></p> <p>Problem 1: <b>Historical Poor Relations</b></p> <p>Problem 2: <b>Poor Communication</b></p> <p>Problem 3: <b>Poor Stakeholder Management</b></p> <p>Problem 4: <b>Payment of Compensation and Claims</b></p> <p>Problem 5: <b>Eskom’s Public Image as portrayed in the media</b></p> <p>Problem 6: <b>Isolated and Poor Expansion Planning Processes</b></p> <p>Problem 7: <b>False promises made by Negotiators</b></p>	<p>Problem 8: <b>Construction commenced prior to payment of options.</b></p> <p>Problem 9: <b>Not Enough time allocated to conduct a thorough job.</b></p> <p>Problem 10: <b>Visual impact on the landowner property.</b></p> <p>Problem 11: <b>Appointment of Contract Negotiators</b></p> <p>Problem 12: <b>Poor EIA and Public Participation Processes</b></p> <p>Problem 13: <b>Compromised Security</b></p> <p>Problem 14: <b>Lack of Transparency and Openness</b></p> <p>Problem 15: <b>Inadequate Time, Funds, Skills and Experience</b></p>
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### **Problem 1: Historically Poor Relations**

Table 7 (page 54) shows that the problem of historically poor relations was highlighted by ten (10) of the interviewees. This number constitutes 56% of the respondents and is the most obvious problem to be highlighted in figure 10 (page 28). These respondents indicated that a significant number of landowners have had bad experiences in the past with damage being caused to their land and no subsequent rehabilitation projects being initiated to solve the problem. Such circumstances stem from the older way of doing things where there were no stringent environmental laws, if any at all. There was less environmental control in earlier days, and methods of construction and principles such as “*the polluter pays*” and “*from the cradle to the grave*” were not enforced.

Construction and maintenance personnel who do not adhere to contract agreements or option conditions also give rise to historical problems. **Respondent 1** indicated that the fact that maintenance personnel enter the landowner’s premises without prior arrangement contributes to the landowner’s reluctance to grant Eskom servitudes. They leave gates open, resulting in the loss of livestock, and this angers the landowner.

**Respondent 3** indicated that landowners allege that Eskom does not respond timeously when fires are reported to the utility. Eskom does not respond to the call, and if they do, they visit the area once and never return again to rehabilitate the damaged area. Eskom appoints external consultants to investigate claims, which the investigators often dismiss on the grounds that the fire might not have been caused by Eskom, but attribute it to “An Act of Nature”, with the result that no payment is made for the damage. In some cases, the landowner could have lost his crops.

**Respondent 13** agreed with **Respondent 3**’s statement and explained that if a landowner owns 10 000 ha of land and 5 000 ha are burnt, that landowner loses 50% of his grazing land. This affects the economic wellbeing of the farmer. Poor relations surface when claims remain unpaid. This can affect future negotiations between Eskom and the landowners.

Although all four Environmental Control Officers who were interviewed indicated that construction personnel are 80% compliant in terms of contract agreements, the 20% that are lacking in compliancy pose a serious challenge, which should be treated as a matter of paramount importance. Issues such as riding over fences, leaving gates open and the theft of livestock negate all the sound environmental practices that the project personnel implement. Farming with either food crops or livestock is the landowner's primary business and loss of livestock, crops or fruit means a loss of income to the farmer.

**Respondent 3** indicated that the primary activity that angers the landowners during construction is bush clearing. It might have been in the agreement that certain trees would not be touched. However, since the powerline design keeps changing, it is possible that trees that were meant to remain untouched are cleared to accommodate the new design. In term of Heritage, these trees may be of importance to the landowner. The tree may have been in the family for generations and be of significance to the family. Cutting such vegetation down could really anger a landowner.



From the abovementioned, it is clear that historically poor relations surface during all of the phases of the life cycle of a powerline (figure 7 on page 28), with the construction, operation and maintenance phases being the main culprits highlighted in the responses. Significant levels of social interaction take place between Eskom and the landowners during these two phases of the life cycle of the line, and the success in obtaining servitudes timeously depends on the relations built and maintained throughout these phases of the powerline's life cycle.

### **Problem 2: Poor Communication**

Table 7 (page 54) indicates that poor communication is a problem that hinders the process of servitude acquisition as it was recorded eight (8) times during the interviews. Communication is one of the elements which is necessary during the planning phase of the life cycle of the powerline and is accompanied by social interaction, as shown in figure 7 (page 28). Figure 10 (page 53) shows that 44% of the respondents focused on this problem during the interviews, and emphasised that ineffective communication could affect relations between Eskom and the landowners,

thereby negatively impacting upon the process of servitude acquisition. The public is also not generally informed about the need and desirability for Eskom to acquire servitudes timeously as this issue is not adequately and explicitly communicated.

**Respondents 7, 8 and 9** indicated that interdepartmental communication is also lacking within the organisation. General outcomes and lessons learned are not communicated and shared. The departments within Eskom operate as isolated compartments and this result in interruptions in service delivery. If communication is improved, much could be accomplished.

**Respondent 8 was quoted as saying:**

*“The Insurance Department is not always informed when Transmission: Lands and Rights Department is negotiating for servitudes, and they need to know this in order to ensure that all claims in that area are settled. Sometimes works are stopped by landowners on account of small claim that Eskom failed to pay.*

**Problem 3: Poor Stakeholder Management**

Table 7 (page 54) shows that poor stakeholder management is a problem that was highlighted eight times during the interviews by 44% of the respondents (figure 10 on page 53). **Respondent 12** indicated that there is a need to involve all stakeholders throughout the life cycle of the powerline (figure 7 on page 28), while **Respondent 6** also stated that stakeholder engagement within Eskom still requires a lot of work, particularly with transmission lines and generation stations. **Respondents 7, 8 and 9** indicated that on account of poor stakeholder management, there is a communication gap within Eskom, with no interdepartmental collaboration among the role-players/stakeholders in the life cycle of the powerline. This needs to be corrected as a matter of urgency. **Respondent 10** indicated that the construction personnel should be represented during the public participation debates as the communities sometimes ask technical questions which need technical expertise to answer. This highlights the fact that poor stakeholder management is currently a problem within Eskom.

**Respondent 6 was quoted as saying:**

*“Who are the stakeholders and who are the people engaging with these stakeholders?” This is the first question that Eskom needs to ask. Some stakeholders do not even know that they are stakeholders in the life cycle of the powerline. These people do not even know that they influence the whole life cycle, especially the acquisition of servitudes for transmission powerlines.”*

**Problem 4: Payment of Compensation and Claims**

Table 7 (page 54) demonstrates that failure to pay for compensation and claims was highlighted by seven respondents as one of the problems associated with the acquisition of servitudes for transmission powerlines. Figure 10 (page 53) shows that 39% of the respondents were of this conviction. The responsibility to pay these claims is assigned to the stakeholder- relations (interactions), as illustrated in figure 7 (page 28) in the life cycle of a powerline. From these instances, it was noted that problems are continually being experienced on properties where a powerline already exists.. Previous experiences of landowners with Eskom in respect of the reluctance of the utility to pay claims and/or its delays in paying claims account for these problems. Some claims are only settled after the landowners have taken the company to court or during negotiations for another powerline passing through the same property.

**Respondent 2 was quoted as saying:**

*“In one instance, a landowner was not paid his claim. Seven years later, Eskom needed a servitude and he told Eskom to pay the claim first before he would grant them another servitude. Eskom requested the negotiator to gather all historical and background documentation regarding this case. The persons who [had] worked within that grid were no longer with Eskom and this required the negotiator to re-start the process for the claim in order to get the landowner to grant a servitude. Such circumstances prove to be time consuming and tend to delay the projects.”*

As regards the consideration of payments for servitudes, it was also noted from the interviews that payments are made according to the market value of the land. The market value of a property is of great importance and is determined by an independent evaluator. To enhance the process of servitude acquisition, a *solatium* (financial

sweetener to conclude the deal) is added. The land has to be assessed according to the type of land-use, and landowners do not always understand the variations and fluctuations in land values. Landowners sometimes value their properties higher than the realistic value. It must, however, be borne in mind that there is still confusion about the specific types of compensation and claims that are to be paid by Eskom to the landowner. The social interaction that occurs during these disputes can affect relations between Eskom and the landowner, which in turn hinder the process of servitude acquisition.

### **Problem 5: Eskom's Public Image as portrayed in the Media**

Table 7 (page 54) indicates that Eskom's image that is portrayed in the media is regarded by seven respondents as one of the problems that can be associated with the reasons why landowners do not want to grant Eskom servitudes. These respondents made up 39% of the personnel interviewed (see figure 10 on page 53) and claimed that landowners are informed and know what is going on through the media.

#### **Respondent 9 was quoted as saying:**

*“Based on information from the media revealing the large bonuses paid out to Eskom executives, the landowners develop a particular perception about the power utility which causes them to become greedy and to demand more money from Eskom than is unrealistic, thereby prolonging the process of servitude acquisition.. The fact that Eskom publicises its finances puts the organisation in a bad light as this display of monetary assets suggests that the organisation is affluent.”*

### **Problem 6: Isolated and Poor Expansion Planning Processes**

Table 7 (page 54) shows that seven (7) respondents, constituting 39% of the interviewees (see figure 10 on page 53), indicated that the exclusion of most of the stakeholders in the planning phase is one of the problems that can be associated with the reasons for the failure of the power utility to acquire servitudes timeously. Planning and expansion planning are classified as the first phases/stages of the life cycle of the powerline (figure 7 on page 28). This is where the first instance of social interaction should take place. However this is not currently the case. Although the Transmission Development Plan is shared with forums such as particular farmers'

associations, it does not reach the public at large, which remains ignorant of relevant and vital information. With expansion planning being the first instance of social interaction, this phase can be used as a platform to build a relationship between Eskom and the public and to introduce the plan in order to facilitate a more timeous servitude acquisition process. Because the plans are developed in isolation, the public is not aware of the need and desirability for the timeous acquisition of servitudes.

Furthermore, the stakeholders within the utility are only introduced into the life cycle of the powerline after the expansion plans have been completed. This does not allow adequate time to establish relationships and conduct background work in the area in which the powerline is to be constructed. For example, the Grid Maintenance Team can inform the committee about the types of landowners in that vicinity, while the Insurance Department can establish the claim history of the landowners within that area and ensure that all claims have been settled accordingly. **Respondent 6** alleges that the fact that Eskom develops Transmission Development Plans based on a short-term basis also a problem because it does not allow adequate time for planning and conducting background work in preparation for the expansion.

#### **Problem 7: False promises made by Negotiators**

Negotiations occur during the permitting phase of the life cycle of the powerline as illustrated in figure 7 (page 28). Six (6) key stakeholders highlighted the fact that negotiators make false promises in order to facilitate a quicker servitude acquisition process (table 7 on page 54). Also, figure 10 (page 53) shows that these respondents represent 33% of the individuals interviewed. This is one of the major problems that leads to a deterioration in the relations between Eskom and the landowners and therefore hinders the process of acquiring servitudes timeously.

#### **Respondent 1 was quoted as saying:**

*“One instance, a negotiator promised a landowner a particular type of tower, but constructed a different one. This angered the landowner, and when Eskom tried to negotiate for land for a powerline that was to run parallel to the existing line, the landowner refused to grant Eskom the servitude and referred the utility back to the matter that had not been resolved. Eskom was forced to*

*pay additional compensation prior to obtaining the second servitude. This was a time-consuming and costly exercise”.*

**Problem 8: Construction commenced prior to the payment of options**

Table 7 (page 54) shows that the problem of commencing with construction work prior to the payment of the option (payment for the servitude granted) was highlighted by five (5) respondents. These five respondents constituted 28% of the interviewees, as illustrated in figure 10 (page 53). Four of these five respondents were the Environmental Control Officers who were then left with the responsibility of ensuring that the payment for the land was made; while the other respondent was a negotiator who should have borne the responsibility of ensuring that all payments were made timeously. Since Environmental Control Officers are responsible for liaising with landowners during the construction phase, the landowners expect them to process their payments expeditiously. The payment of options is not the responsibility of the Environmental Control Officer, however, and should be concluded prior to the commencement of the work. The payment occurs during the construction phase of the life cycle of the powerline, as is obvious from figure 7 (page 28). However, the construction personnel initiate the exercise by establishing and occupying the site and start moving around the property prior to the payment for the servitude. The payment of options is another instance involving social interaction. The fact that these options are not paid in time then affects Eskom’s future relations with these landowners and may result in their reluctance to grant further servitudes.

**Respondent 2** indicated that the process of registering a servitude may take approximately 12 months. However, owing to the urgency of the situation, construction usually commences before payment for the option (servitude) has been made. The landowners want their money before construction commences and since time frames are not effectively communicated during the negotiations, this creates a problem. The landowner usually denies Eskom entry into his property and this results in payments Eskom having pay money “standing time” (time when the contractor is on site, but no work is done) if a contractor has already been procured. This proves to be a financial loss to Eskom.

**Respondent 13** indicated that some farmers do not understand the process of registering a servitude. The farmers want a “Cash-on-Delivery” type of transaction. They want the payment prior to the commencement of the project and in some instances one may find that the farm is under claim, so no payments can be made until the rightful owner has taken ownership of that land. In some cases, projects are completed prior to paying the landowner for the option. This upsets the landowners and/or communities and they begin to build up resentment towards Eskom. This puts a large strain on new projects in that payments for the old projects need to be settled first, before Eskom is granted a second servitude. These obstacles and timelines need to be communicated to the landowner properly during negotiations in order to create understanding and retain good relations between Eskom and the landowners.

**Problem 9: Not Enough time allocated to conduct a thorough job**

Five (5) respondents indicated that the time allocated to conduct work is not sufficient for achieving a good result and that this is one of the most obvious problems that obstruct the process of timeous servitude acquisition (Table 7 on page 54). 28% of the respondents, as shown in figure 10 on page 53, indicated that all projects are classified as urgent - which makes it difficult to do a thorough job. Adequate time is necessary for satisfactory negotiations and to build up a relationship with the landowners. On the other hand, public participation requires even more time to consult with the public and also to improve relations with them. **Respondent 2** claimed that the inadequate time allocated for negotiations especially does not promote good relations with the landowners. Negotiators are expected to sign an option for acquiring a servitude after three visits to the landowner which is not usually possible.

**Respondent 3 was quoted as saying:**

*“There are not enough Environmental Assessment Practitioners to conduct Public Participation Debates. There is not enough time allocated for proper Public Participation Debates and Exercises to be conducted. The commercial need, the time that business has, puts the negotiators “in the box”. The expansion plans must be developed timeously and governments should also intervene.”*

### **Problem 10: Visual impact on the landowner's property**

The view that the presence of powerlines on one's property presents a negatively intrusive visual impact is one of the problems quoted by five (5) respondents (table 7 on page 54): 28% of the respondents felt this way (figure 10 on page 53). **Respondent 4** indicated that some landowners do not want powerlines on their properties because it changes the aesthetics of their properties, while **Respondents 13 and 18** supported this statement by claiming that these landowners hide behind environmental conservation objectives as a reason for the reluctance to grant Eskom servitudes, whereas they are actually concerned about the aesthetics of their properties.

### **Problem 11: Appointment of Contract Negotiators**

Table 7 (page 54) shows that the appointment of Contract Negotiators was highlighted as a problem that also contributes to the ineptitude of Eskom in acquiring servitudes. Figure 7 (page 28) shows that negotiations occur during the permitting phase of the life cycle of the powerline. The social interaction between the contract negotiators and the landowners during the negotiations process could determine future relations, either good or poor, between Eskom and the landowners

This problem was highlighted four times by 22% of the respondents during the interviews (figure 10 on page 53). **Respondent 11** indicated that the skills related to servitude negotiations within the utility are inadequate and limited. Skills need to be developed in learning development projects within Eskom. Eskom needs to train its employees and make sure that the skills are transferred rather than to contract people from outside, in which case the utility would never build capacity within the organisation itself. **Respondents 2 and 13** concurred with **Respondent 11** in saying that Contract Negotiators are paid per signature - which can open the organisation up to services that are of an inferior nature. Contract negotiators are said to threaten landowners with expropriation if the landowner is reluctant to grant the servitude. This action manifests throughout the life cycle of a powerline, the landowner becoming the victim of a "*terrorist act*", which causes even longer delays, extending the deadline dates for the projects in question.

## **Problem 12: Poor Environmental Impact Assessment and Public Participation Processes**

Poor Environmental Impact Assessment and public participation processes feature as amongst the most obvious problems associated with servitude acquisition, and were highlighted by four respondents (table 7 on page 54). Environmental Impact Assessments and Public Participation Debates are yet another important instance of social interaction and occur during the permitting phase of the life cycle of the powerline (figure 7 on page 28). These four respondents, constituting 22% of the interviewees, indicated that all issues raised at the public meetings need to be addressed before construction commences. A good public participation process makes way for easier negotiation. There are not enough Environmental Assessment Practitioners with adequate expertise to conduct public participation.

**Respondent 13** indicated that Environmental Impact Assessments are undertaken as a desktop exercise. Not enough time, resources and skills are allocated to this cause. Heritage sites, such as graves, which are not mapped on the desktop, will not be identified until after construction commences. It is possible that the farmer's entire family has been buried on the farm. This is of generational importance to him, therefore, and he would not allow a transmission powerline to be built on that land. A good Environmental Impact Assessment, together with a good public participation process, could uncover a lot.

### **Respondent 10 was quoted as saying:**

*“The influence that the public can have on decisions that are made for a project and within the project can influence the project significantly. If exploited properly, public participation can have benefits, but its impacts can be truly negative if it is handled in a mediocre way. As proponents of a new project, the public and stakeholders have a lot of information at their disposal that they could share but that would remain unknown to the Interested and Affected Parties should there be no public debates. Putting an advertisement in the newspaper, holding a public meeting or speaking to the farmers' association alone proves to be really insignificant and ineffectual.*”

### **Problem 13: Compromised Security**

Three respondents indicated that compromised security is one of the major issues that bring uncertainty into the minds of landowners (table 7 on page 54). The landowners feel that they are not the “bosses” of their own properties. It is a fact that during the operation and maintenance phase of the life cycle of the powerline (see figure 7 on page 28), the Grid Maintenance personnel do not always inform the landowners prior to accessing their properties for maintenance purposes. This leaves the security of the farm compromised. Without prior notification, landowners, on seeing vehicles on their premises, are not sure whether they are Eskom teams visiting a servitude site or criminals. Figure 12 (page 53) shows that these three respondents make up 22% of the interviewees who are of this conviction. They are of the opinion that a lack of security on the farms can be linked to farm murders. People entering their properties threaten their security.

#### **Respondent 2 was quoted as saying:**

*“One landowner once told me that: “Ek is nie meer baas op my eie plaas nie!”*

Translated into English meaning:

*“I am no longer the boss of my own farm”.*



### **Problem 14: Lack of Transparency and Openness**

Table 7 (page 54) shows that only two respondents, 11% of the respondents (figure 10 on page 53), indicated that the lack of transparency and openness about the projects and their impacts on the community is one of the problems contributing to the risk that Eskom faces in its unsuccessful attempts to acquire servitudes timeously. The fact that impacts are not effectively communicated to the communities prior to the construction of the power transmission lines means that they will experience these impacts without being prepared for them. Communities/landowners are caught by the surprise factor when they see large pieces of machinery on their properties, which could result in an extremely negative response as long as they are unprepared for such developments.

**Respondent 17** concurred with **Respondent 10** in stating that there is lack of openness and transparency in Eskom’s planning and operations. These respondents indicate that communities usually enquire about employment during the public

meetings, and are assured that there will be personnel to address the employment issue. However, once the servitude has been granted, none of this happens. This raises the hopes of the communities - only to be disappointed in the end.

**Respondent 10 was quoted as saying**

*“A lot of people believe that little information is good; however, this is a bad practice. They think one is stirring up trouble if one is transparent and honest about the true nature and environmental impacts of the projects. In some cases, the impacts are not largely shared during the public participation process. The landowners only become aware of the impacts during construction.”*

**Problem 15: Inadequate Time, Funds, Skills and Experience**

Two respondents indicated that the time, skills and experience that most of the stakeholders have at their disposal to conduct a thorough job (table 7 on page 54) tend to be inadequate. This problem manifests in the provision of an inferior service by the stakeholders and was raised by 11% of the respondents (figure 10 on page 53). These respondents further indicated that personnel responsible for the different phases of the life cycle of the powerline need to have proper guidance. More time, money and skills need to be invested in Environmental Impact Assessments and Public Participation processes which are undertaken during the permitting phase of the life cycle of the powerline (figure 7 on page 28) in order to avert the risk that Eskom faces in being unable to acquire servitudes.

From the preceding through the literature reviewed and the data obtained during the interviews, the most critical problems pertaining to the acquisition of servitudes for transmission powerlines can be summarised, as in table 8 (page 67):

Table 8 (page 67) shows that this summary of problems is of a socio-cultural nature and therefore related to human behaviour. It is the people who create these problems and also people who have it in their power to eliminate these problems. The relationships that Eskom establishes with other stakeholders throughout the life cycle of a powerline are therefore important for improving and maintaining good relations

with the landowners. It may take years for Eskom to pay that price, but the cost becomes greater as the years pass by.

There were four main problems which were highlighted during the literature review, and also during the interviews. These major problems are summarised below. This researcher would like to emphasise the fact that, notwithstanding the attention that these four problems enjoyed in the literature and interviews, this does not, however, mean that the other problems are insignificant. Action plans for all of the fifteen (15) identified problems need to be deduced and implemented in order to cover the entire spectrum of problems that are experienced throughout all the phases of the life cycle of the powerline.

These five main problems are:

- Historical problems/ Historically poor relations;
- Poor communication;
- Poor stakeholder management
- Visual impact on landowner's property;
- Poor Environmental Impact Assessment and public participation processes.

**Table 8:** Table illustrating the problems pertaining to the acquisition of servitudes, as identified by other researchers vs. those revealed in this study

Problems	Literature Review	Interviews
Powerlines devalue property	√	
Powerlines result in economic instability	√	
Powerlines give off electro-magnetic fields	√	
Lack of knowledge	√	
Historical problems/ Historically poor relations	√	√
Poor communication	√	√
Poor stakeholder management		√
Non-payment of compensation claims		√
Eskom's public image portrayed in the media		√
Isolated and poor expansion-planning processes		√

False promises made by negotiators		√
Construction commenced prior to payment in respect of an option		√
Inadequate time allocated to conduct a thorough job		√
Visual impact on landowner's property	√	√
Appointment of contract negotiators		√
Poor Environmental Impact Assessment and public participation processes	√	√
Compromised security		√
Lack of transparency and openness		√
Inadequate time, funds, skills and experience of personnel		√

From the discussion of the results, this summary reveals that all of the fifteen (15) most obvious problems pertaining to the acquisition of servitudes can be linked to all the phases of the life cycle of the powerline. Furthermore, these problems can be associated with one or more instances of social interaction among the nine (9) respondents who were selected as interviewees. It is, therefore, apparent that problems pertaining to the acquisition of servitudes for transmission powerlines are not only bio-physical, but also socio - cultural in nature.



## 8: CONCLUSION

*This section provides a synthesis of the study. It discusses the conclusions reached concerning the problems pertaining to the acquisition of servitudes for transmission powerlines. It summarises the objectives that were set and also indicates whether the objectives of the study were met.*

It is apparent from this study that the problems pertaining to the acquisition of servitudes for transmission powerlines also manifest in the socio-cultural environment. It is also apparent that social interactions during the life cycle of a powerline, as discussed throughout the study, contribute to conflict between Eskom and the landowners and result in difficulties in obtaining new servitudes. This has been shown throughout the research process, through the review of the literature and through the interviews conducted with the stakeholders, who play a role in the process of acquiring servitudes.

Factors such as historically poor relations, poor communication (both within Eskom and outside of the utility), poor stakeholder management, poor Environmental Impact Assessment processes, and little attention being given to public participation processes, are amongst others, four of the most significant socio-cultural problems pertaining to the acquisition of servitudes for transmission powerlines. The most significant, common biophysical problem(s) identified by both literature and the interviewees is that powerlines pose a visual impact on landowner's property. It is therefore evident that the problems pertaining to the acquisition of servitudes for transmission powerlines are also socio-cultural. There is a need to improve relations between Eskom and the landowners. This can be achieved by improving communication between the parties and engaging the stakeholders. An improvement in these two factors could significantly improve the process of servitude acquisition.

It has also been demonstrated through the discussion of the problems pertaining to the acquisition of servitudes that there are four crucial elements for successful negotiations (Pienaar and Spoelstra, 1991). These elements are as follows:

- **Transparency:** It is evident that a lack of transparency and honesty during the pre-feasibility phase (figure 7 on page 28) of the life cycle of the powerline manifest as problems at a later stage. This can be achieved through communication. If the proponent is not honest about the impacts of the powerline on the landowner's property, and the landowner becomes aware of these impacts only once they occur, the landowner may feel cheated and lose his trust in the developers.
- **Flexibility:** Developers need to learn to be flexible by exploring other alternatives and through compromise. An example to illustrate this statement would be in the case of a powerline designed for construction along a straight line. If one of the tower positions happens to coincide with a borehole on the property, developers would have to compare the cost of moving the tower to that of moving the water borehole and choose the cheaper option. In this case, both the developer and the landowner are satisfied, which also builds trust.
- **Time:** Time and timing are crucial for ensuring successful negotiations. Adequate time must be allocated to building a good relationship between Eskom and the landowner for the latter to gain trust. Similarly, the timing of an activity or a meeting also has to be appropriate. It would not be a good idea to conduct public participation debates within a farming community during the spring and autumn, when the farmers are busy as the attendance would be poor. This would necessitate another session, making the first session a waste of money and time.
- **Trust:** This element is brought about by the three elements that are explained above. Being transparent and open, spending enough time explaining the project, and being flexible about alternatives, are indications of genuine motives and attitudes and therefore ensure trust.

Major awareness needs to be created in order to highlight the need for and desirability of the timeous acquisition of servitudes. Furthermore, communications should be put out regarding the importance of the public's cooperation in these processes, thereby

making further research into the landowner's perspective on his reluctance to grant Eskom servitudes imperative.

**The objectives of this study that have been met are as follows:**

- **To conduct review of literature in an attempt to highlight those problems that hinder the process of acquiring servitudes, as identified by other researchers.** The prevailing problems were identified and are discussed in the literature review, in Section 4.
- **To identify the respective social interactions that prevail between Eskom and the landowners, based on a transmission powerline life-cycle approach.** The different instances of social interaction were identified in presented in a transmission powerline life-cycle model in Section 5.
- **To discuss the various instances of social interaction in the entire life cycle of the transmission powerline.** Those instances where social interaction took place between Eskom and the landowners during the life cycle of the powerline were identified, discussed and illustrated schematically (figure 7 on page 28) in Section 5.
- **To investigate the problems pertaining to the acquisition of servitudes for transmission powerlines for each phase of social interaction throughout the life cycle of a powerline - which were identified by the Eskom personnel and which might lead to a deterioration in the relationship between Eskom and the landowners .** Sections 6 and 7 identify all of these problems and summarise them as fifteen (15) coded problems
- **To recommend to Eskom areas and practices for improving the relationships between the utility and the landowners to contribute to the process of acquiring new servitudes.** In order to eliminate the problems pertaining to the acquisition of servitudes, methods for improving relations between Eskom and the landowners were deduced from the fifteen (15) thematic problems and are discussed in Section 9 (figure 11 on page 72).

## 9: RECOMMENDATIONS

*This section focuses on the methods and practices for improving Eskom's relationships with the landowners and for contributing to the acquisition of new servitudes. The recommendations generated in this part of the study will finally allow for the realisation of the ultimate goal of this thesis. When implemented, these recommendations should improve relations between Eskom and the landowners and also ensure that servitudes are obtained timeously.*

This minor dissertation has managed to identify a number of the most obvious problems pertaining to the acquisition of servitudes for transmission powerlines. As indicated in Section 2, this minor dissertation sought also to develop methods that should be employed throughout the life cycle of a powerline in order to contribute to the timeous acquisition of servitudes. These methods, when implemented correctly, serve to positively enhance relations between Eskom and the landowners. This section presents only high-level recommendations, a comprehensive flow diagram of which is illustrated in Figure 11 (page 72) and follows the sequence of a life-cycle approach for a powerline, as illustrated in figure 7 (page 28).

Two critical methods were devised. They were based on the nature of the problems pertaining to the acquisition of servitudes, as revealed in the study. These methods are:

### **1. Improved Communication**

This includes both internal (within Eskom) and external (outside Eskom but within the public domain) communication. Improved communication can be achieved through proper organisation. Communication with Interested and Affected Parties should be on a continuous basis - throughout the life cycle of the powerline. Such communication can be channelled through mediums such as Stakeholder Engagement Forum meetings, Farmer's Association meetings, road shows, and television and radio talk shows.

## 2. Improved stakeholder management

There is the need to consolidate a high-level Eskom Stakeholder Forum based on the roles that the stakeholders play in the life cycle of the powerline. This forum should consist of the role players in the life cycle of a powerline in the respective divisions and departments of Eskom. These stakeholders should serve as gate-keepers in the different phases of the life cycle of the powerline and ensure a closed-loop process flow which promotes interdivisional collaboration and interaction throughout the life cycle of the powerline, and also enhance the process of servitude acquisition. This also ensures continuity (e.g. if the Claims Department draws up the outstanding claims history of landowners in a particular area that has been identified for development, the associated claims can be settled prior to the stage when negotiations for another servitude are conducted). The implementation of both these high-level recommendations will serve to improve relations between Eskom and the landowners. A flow diagram of the recommendations is presented in figure 11.

### EXPANSION PLANNING

- Engage with DEPARTMENT OF MINERALS AND ENERGY to ensure that the IDEPENDEDNT RESOURCE PLAN reflects a 20-30 year horizon in order to refine Eskom's Transmission Development Plans and base it on a 20-30 year horizon.
- Establish the location and timing of the power station and/or Transmission Line when the demand is established, in order to develop a Network Plan and start liaising with landowners in those areas.
- Liaise with Customer and Stakeholder Relations and obtain claim history along those proposed corridors or locations.
- Ensure Environmental representation during planning.
- Ensure that the public forms part of the Annual Stakeholder Forum and communicate the outcomes thereof.
- Map out the stakeholder management process between Eskom and the public.
- Incorporate the concept design and capacity needed into the Expansion Plans in order to assist in the negotiation process. The negotiator needs to be informed when negotiating for land and failure to this may result in lack of trust, resistance and therefore reluctance. The negotiator may have to return to the landowner at a later stage after the design is finalised. This will delay construction.

### STRATEGIC ENVIRONMENTAL ASSESSMENTS (SEAs) -

- Conduct Strategic Environmental Assessments for all upcoming projects, this can be cost saving as it aids in strategic decision making.

## **COMMUNICATION**

- Publish the Transmission Development Plan via communication mediums such as Newspapers, TV, and Internet etc.
- Ensure continuous communication with the public via communication mediums such as Newspapers, TV, and Press Brief etc.
- Be sensitive to messages about Eskom that may influence negotiations for servitudes (i.e. bonuses for EXCO)
- Form part of the Eskom Stakeholder Management Forum for transmission powerlines.



## **PUBLIC PARTICIPATION AND EIA**

- Ensure representations of all stakeholders (including technical) in the life cycle of a Powerline during public participation meetings.
- Conduct public participation after construction to enquire about issues and sort the issues out - Do not wait until another servitude is needed.
- Ensure the appointment of Specialist Environmental Assessment Practitioners with Technical Expertise.
- Ensure the interaction of Environmental Personnel from Construction Management throughout the process of Environmental Impact Assessment and Public Participation.
- In cases of construction in Brown fields, ensure liaison with Grid maintenance and other Eskom satellites for profiles of landowners in those areas.
- Ensure that the correct types of people are assigned to the correct projects. Culture and race plays an integral part in that one needs to understand the other and behave in an acceptable manner.
- Allocate adequate time, money, skill and guidance for a successful Environmental Impact Assessment Process
- Form part of the Eskom Stakeholder Management Forum for transmission powerlines.



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## **NEGOTIATIONS & SERVITUDE ACQUISITION**

- In cases of construction in Brown fields, ensure liaison with Grid maintenance and other Eskom Insurance for profiles of landowners and claim history respectively. SETTLE ALL OUTSTANDING CLAIMS PRIOR NEGOTIATIONS.
- In cases where the servitude is along community land, ensure openness and transparency during negotiations and the involvement of the community throughout the process of servitude acquisition –Avoid negotiating with the Chief only.
- Form part of the Eskom Stakeholder Management Forum for transmission powerlines.



## **CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN MONITORING, AUDITING AND REPORTING**

- Ensure that no construction commences until the entire servitude is fully acquired - this will reduce the cost of standing time.
- Prior the tendering process, a workshop on the EMP requirements should be presented to the Contractors and ensure that contractors acquire the services of a competent Environmentalist.
- Develop, enforce and track a full proof fine and penalty system for consistently poor or negligent environmental compliance/performance.
- Separate ECO work and landowner liaison as there is a continuous need fro landowner liaison and CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN Monitoring. The integration of the two responsibilities results in overlooking of the other.

### **PUBLIC INTERACTION**

- Ensure social responsibility through compulsory employment of community members. – At least 20% of the workforce should comprise the community members around the area which the powerline is being built.
- Ensure continuous communication throughout the project, not only during negotiations.
- Form part of the Eskom Stakeholder Management Forum for transmission powerlines.
- Form part of the Eskom Stakeholder Management Forum for transmission powerlines.



### **GRID MAINTENANCE**

- Ensure that a maintenance plan is drawn up and communicated to the landowners in order to avoid having to call them every time for scheduled maintenance.
- Form part of the Eskom Stakeholder Forum to provide local information within the different grids.
- Form part of the Eskom Stakeholder Management Forum for transmission powerlines.



### **CUSTOMER AND STAKEHOLDER RELATIONS.**

- Continually communicate outcomes of a claim and lessons learnt in a claim dispute.
- Executing and paying for the servitude before construction commences.
- Obtain all landowner names along the servitude where the line is to be built and check for outstanding claims in order to resolve them prior to commencement of negotiations.
- Form part of the Eskom Stakeholder Management Forum for transmission powerlines.

**Figure 11:** Flow diagram of the recommendations per phase of the life cycle and social interaction.

Figure 11 shows that there is a need for interdepartmental collaboration among the different divisions and departments within Eskom which are stakeholders in the life cycle of the powerline.

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## **11. APPENDICES**

Section 6 indicated that this study was an inquiry of a qualitative nature and that questionnaires would be the tools for the research. A total of nine questionnaires were developed for each instance of social interaction. The questions on the questionnaire were the same for Sections A and B, however, different and role specific for Section C. Appendix A is an example of one of the questionnaires while Appendix B is a transcript of the responses obtained from all respondents for Section C of the questionnaire. These responses were transcribed into written notes. It should be noted that it is owing to the nature of the study, namely that this is only a minor dissertation, that only one example of the questionnaire is attached, while on the other hand, the transcript comprises of responses from all of the participants.



# APPENDICES

The logo of the University of Johannesburg is a watermark in the background. It features a stylized bird or eagle with its wings spread, positioned above the text 'UNIVERSITY OF JOHANNESBURG'. The text is arranged in three lines: 'UNIVERSITY' on the top line, 'OF' on the middle line, and 'JOHANNESBURG' on the bottom line. The entire logo is rendered in a light gray color.





## **APPENDIX B: An edited version of the interviews conducted during data collection**

### **Section C: Questions and Answers: Role-specific Questions**

#### **Introduction**

Section C presents the role-specific questions and answers. It must be borne in mind that the role-specific questions are based on the roles and responsibilities of the respondents according to the positions that they hold within the respective organisations that they work in, their particular departments and their roles in the life cycle of the power line in question. Therefore, different questions for Section C were posed per instance of social interaction.

#### **1) Expansion Planning**

One stakeholder from Expansion Planning (**Respondent 6**) was interviewed with the following questions and responses being relevant:

##### **1.1 Is there a published expansion plan?**

There is in fact an expansion plan in existence as it is a Grid Code requirement. The process of developing expansion plans was introduced in 2009. The transmission of electricity is essentially a monopolistic function and all taxpayers pay for transmission investments and expenditure. Those people who are paying need to know what they are paying for. This is a way to ensure transparency, openness and to gain trust from Interested and Affected Parties.

Eskom has made provision for a Ten-year (10) Transmission Development Plan, . Furthermore, an Annual Stakeholder Engagement Forum has been established to deal with expansion issues. . This forum includes Eskom, Industry, Municipalities, Independent Power Producers, the Distribution and Transmission divisions of Eskom as customers, and the Government (i.e. the National Energy Regulator of South Africa and the Department of Minerals and Energy). A test run, informing stakeholders of the outcomes of the planning process, has already been undertaken.. The forum is meant to meet on a yearly basis. The development of the Transmission Development Plan has not been conducted in isolation. Interdivisional collaboration has taken place, between the Expansion Planning Department and the Distribution division providing

significant inputs, and both the distribution and transmission plans being consolidated to respond accordingly to the demand for electricity.

### **1.2 Has this plan been presented to the public?**

This plan has been introduced to the public at the Environmental Impact Assessment phase of the life cycle of the transmission powerline. The Environmental Impact Assessment focuses on specific projects, however, and does not reveal the bigger picture.

### **1.3 Have any changes been made to the plans and how have these changes been communicated to the public?**

There has not been much communication regarding the Expansion Plan. However, looking ahead to the Annual Stakeholder Engagement Forum, it is clear that provision has in fact been made for a platform to present such changes. Similar goals can be achieved in the same vein with Organised Agriculture. A public forum needs to be established to continuously communicate the plans and changes thereof. .

### **1.4 How do Eskom's strategies affect Expansion Planning? (Coal vs Nuclear Energy vs , Demand Side Management)**

Eskom's strategies for electricity expansion have made a huge impact on Expansion Planning since the Transmission Development Plan is based on a set of critical assumptions. Important plans for the generation of electricity have been devised, and should the focus of these plans shift, there will have to be a concomitant shift in the details of the Expansion Plan itself. . This is further complicated by the fact that the country's projection for the generation of electricity is no longer a responsibility of Eskom, but instead a responsibility of the National Department of Minerals and Energy.

It is also the responsibility of South Africa's Integrated Resource Plan to inform the Eskom's strategies. The relevant plans in place may not be as definitive as desired. As such, Eskom needs to find a way of communicating the uncertainties related to its transmission and distribution of power to the stakeholders. In such cases a particular project might be cancelled, but the servitude will still be required. An example of such a scenario would be in the case of a power station which may no longer be built in a

particular area notwithstanding the demand for power from Eskom's customers. In such a case, the same powerline (and, therefore, servitude) will still be required for the purpose of transmitting electricity from another power station source. If, for example, there is a power station in the south, the power will have to be transmitted to the north; whereas if the power station is in the north, the same servitude may be needed to transmit the power to the south."

### **1.5 Is there environmental representation during the process of developing an expansion plan?**

**No, there is no environmental representation during the development of the expansion plan.** The plan is presented to other stakeholders only after its completion, so, inputs are limited. This necessitates more interactive engagement throughout the planning phase.

### **1.6 How does expansion planning negatively and/or positively affect the process of servitude acquisition?**

#### **Negative**

Changes that are made to expansion plans alter all aspects of the project and may require a "re-work", especially from the environmental perspective. This result in a loss of confidence from the stakeholders' camp: they feel unhappy and as if Eskom does not know what it is doing.

#### **Positive**

A fair number of planners are involved during the Environmental Impact Assessment process. They attend the public participation meetings and are able to explain the need for and the desirability of the projects to the public. They answer many of the questions that the landowners might have and address the issues raised.

## **2) Strategic Impact Assessments**

One stakeholder (**Respondent 11**) represented this phase of social interaction and was interviewed with the following questions and responses being relevant:

## **2.1 Has a Strategic Environmental Assessment been conducted for any of the Eskom projects?**

The Transmission Division is busy devising plans for the establishment of the first Strategic Environmental Assessment Plan. A consultant is in the process of being appointed, with another one being recruited to advise on, guide, and review the process. The Strategic Environmental Assessment will be conducted by environmentalists within the Eskom organisation (internal). Strategic Environmental Assessments will not be introduced as substitutes to replace Environmental Impact Assessments, but will help develop scenarios that are being drawn up by the Expansion Planning Department.

## **2.2 How important is it to conduct Strategic Environmental Assessments?**

It is extremely important for Strategic Environmental Assessments to be conducted as these aids **contribute to the effectiveness of** the Environmental Impact Assessments and improve the decision-making process.

## **3) Environmental Impact Assessments and Public Participation**

One (1) Environmental Assessment Practitioner (**Respondent 10**) was interviewed and the following deductions were made from his/her responses:

### **3.1 What is Public Participation?**

Public participation can be regarded as the effect that the public could have on decisions that are taken for a particular project and for circumstances/conditions within the project. Public participation can influence a project significantly. If it is undertaken properly, it could bring with it many advantages for the project. However, if not done properly, it could be to the project's detriment.

### **3.2 Why is Public Participation Important?**

Public participation is mandatory and provision must therefore be made for it to be thoroughly undertaken throughout the transmission powerline life cycle. The proponent of a new project does not have access to a lot of the relevant information unless he/she speaks to the public and the relevant stakeholders.

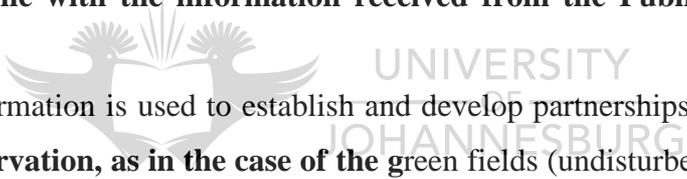
### 3.3 What are the Benefits of a good Public Participation process?

During public participation, knowledge of the local surroundings is gained, while influences are uncovered that one was not previously aware of. Public participation serves the function of informing the relevant parties and as such promotes improved decision-making. If the community is consulted and made aware of the project in question prior to the commencement, of any project and their issues are addressed, the result might well be a smooth construction process, as public participation builds goodwill. If public participation is lacking, the opposite will be the case. If people think that they are being listened to and that their issues are being considered and taken seriously, they would be more inclined to participate.

### 3.4 Who conducts the Public Participation Process?

Environmental Impact Assessment Practitioners, who are independent of the proponent, conduct the Public Participation Process.

### 3.5 What is done with the information received from the Public Participation Process?

- 
- The information is used to establish and develop partnerships in the **interests of conservation, as in the case of the green fields** (undisturbed land where no construction has taken place)
  - The information is used to re-establish and strengthen relationships **in the interests of managing** brown fields (land that has been disturbed, or where construction has taken place).
  - The information is used to identify specialist studies that are necessary **for conserving the environment and for improving the condition of the servitude strips**
  - The information is used to improve (*rather than “influence”...OK??*) the design of a powerline and to make recommendations for alternatives.

It is important for the Environmental Assessment Practitioners to share the information that is gathered from the Public Participation Debates with all stakeholders. Public participation is an ongoing process that requires constant involvement from the, Environmental Assessment Practitioners the construction team, specialist **technicians**, engineers and designers. These people need to explain the

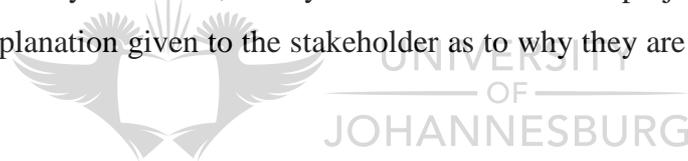
entire process to the public in depth and to explain the need and desirability of the project.

### **3.6 Why does Eskom fail to obtain a positive response from the Public Participation Processes?**

Not enough money and time are set aside to conduct proper public participation processes. It is essential to send out teams of skilled people to visit the individual landowners and important to reach a wider spectrum of people than just those who are directly affected by the development. Time, money and skills are of paramount importance during the public participation process. Putting an advert in the newspaper, arranging public meetings, and speaking to the local farmer's association have proved to be insufficient.

### **3.7 Are all issues raised by the public incorporated into the final Environmental Management Plan?**

Yes; this is mandatory. However, if they are not relevant to the projects, they must be noted and an explanation given to the stakeholder as to why they are considered to be irrelevant.



### **3.8 What type of difficulties are encountered during Public Participation Processes for Linear Developments vs. Site-specific Projects)**

It is important to realise that there are a larger number of people to communicate with in the case of linear developments for transmission powerlines than in the case of site-specific projects. Another constraint that should be considered in the case of such linear developments is that the study area should be wide enough for latitude within it and for other alternatives. In order to introduce an alternative, a wide study area is necessary. Site-specific projects are more easily addressed than linear developments in that the landowner is usually known and there are fewer people to interact with.

### **3.9 What is your view on the Strategic Environmental Assessments preceding the Environmental Impact Assessments?**

Since planning is done on a piece of paper in the office prior to a survey of the route, it is important that a Strategic Environmental Assessment should precede an Environmental Impact Assessment. One is given credibility when one presents the

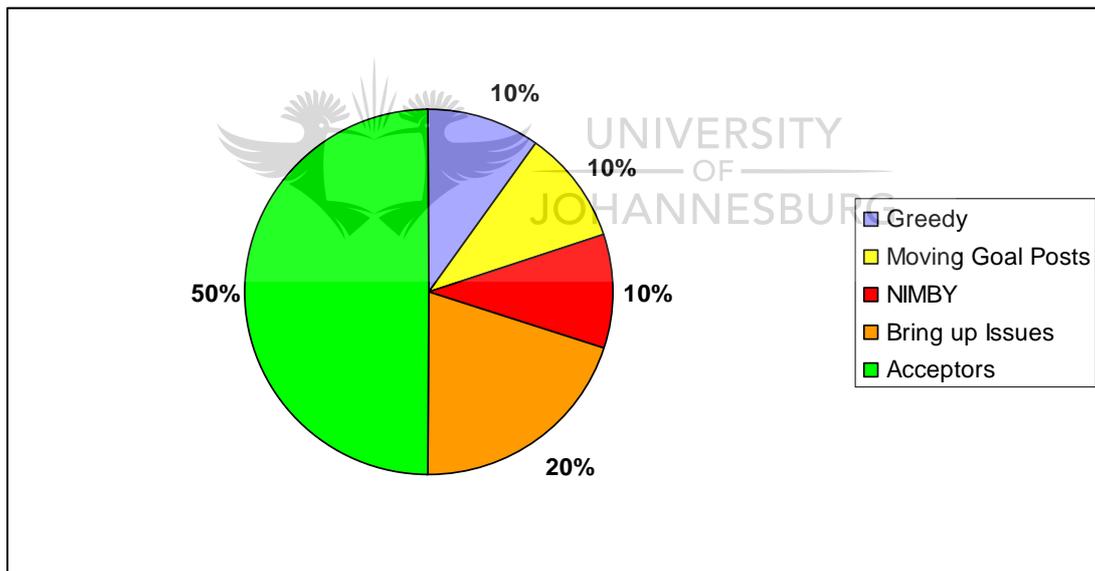
public with a solution. The proponent of the project has at his/her disposal the results of a study showing what was previously done and documents that support outcome-based on strategic principles.

#### 4) Negotiations

A total of five (5) negotiators were interviewed. The responses obtained from the negotiators were integrated into one response. This researcher identified the most appropriate question for the negotiators, namely to enquire about the types of landowners that they generally interview and liaise with.

Based on the responses obtained from the landowners, the following deduction could be made about the types of landowners that the negotiators deal with. All five (5) of the negotiators were in agreement that the following description is appropriate.

(Respondents 1, 2, 3, 4, 12)



**Figure 12:** Types of landowners as described by the negotiators

Figure 12 shows that according to the Negotiators that were interviewed, there are five types of landowners, namely:

- **Acceptors:** They do not have a problem with the line: they are visited on two to three occasions and they grant the servitude. They are not demanding in terms of payment and accept any reasonable payment given to them.

- **Greedy:** These are landowners who already have township development thoughts and plans in their heads. They want to promote development in their areas. These people want more money because they think their properties are worth more. This occurs mostly on land that has already been developed, where the developer stands to save money if the development could be brought to that area, as there are already “systems in place”. The land owned by these people is usually expropriated according to the Expropriation Act – they are paid for the actual impact and not the imaginary one. These landowners require between seven (7) to nine (9) visits at least, prior to signing the option.
- **Bring up Issues:** These people have issues that they raise with the negotiators. These are usually historical issues ranging from the failure of Eskom to pay claims, gates that are left open, maintenance personnel not adhering to contract agreements, etc. These landowners usually require that the previous issues be resolved before granting a servitude. Negotiations can take months, depending on the type of issue raised and also owing to the red-tape system that Eskom employs which extends the delays on the turn-around time for signing the options.
- **Moving Goal Posts:** These landowners do not have objections; however, they move goalposts every time. They demand one thing and as soon as Eskom complies, they want something else. They cannot be read easily. Such people also serve to delay the project.
- **Not In My Back Yard (NIMBY):** These landowners do not want money; nor do they want the powerline extending across their property. They are usually affluent people who do not really care about money. This delays projects. They may listen to the negotiator but they will emphasise the fact that they do not want the line. If threatened, they would be prepared to go to court.

## 5) Communication

One stakeholder from Communications was interviewed. The questions that were posed and the responses follow below:

### 5.1 How does Eskom conduct its internal and external communications?

Internal communication with the media is done via the Email, the Intranet, notice boards, newsletters (print and online), face-to-face (press conferences), while external communication is done via the Email, the Internet, news briefings, advertisements, the telephone, media statements, opinion pieces, interviews and stakeholder engagements

### 5.2 Are new proposed projects communicated to the public? How?

Yes, via the Email, the Intranet, notice boards, newsletters (print and online), face-to-face, while external communication is conducted via the Email, the Internet, news briefings, advertisements, the telephone, media statements, opinion pieces, interviews and stakeholder engagements

### 5.3 Has the importance of the timeous acquisition of servitudes been communicated to the Public?

Not Sure

### 5.4 How do you think your department could contribute positively or negatively to the process of servitude acquisition?

**Positively:** Through pro-actively and timeously providing relevant and requested information to the media and thus reaching the affected public/community.

**Negatively:** Through delays or interruptions in the distribution of the relevant information.

## 6) Construction Environmental Management Plan Monitoring

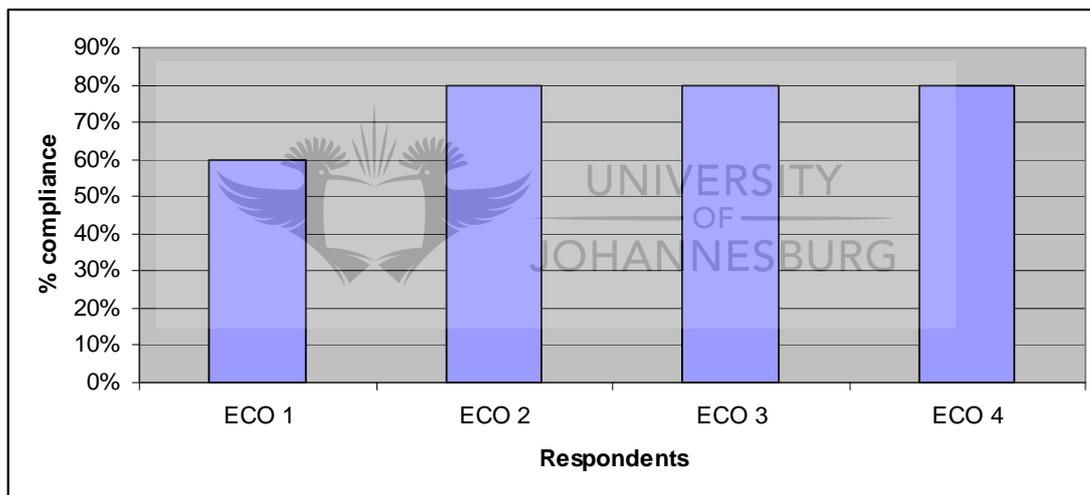
A total of four Environmental Control Officers, namely Respondents 13, 14, 15 and 16, responsible for the monitoring of the Environmental Management Plan, were interviewed. The following deductions were made from their responses.

### 6.1 What types of non-conformances do you usually encounter with the contractors?

**Respondents 13, 14, 15 and 16** indicated that the contractors employ Environmental Officers who are not suitably qualified, knowledgeable and competent, a fatal flaw as it results in the officers refraining from implementing the conditions of the Environmental Authorisation and Environmental Management Plans.

### 6.2 Are Environmental Authorisation and Environmental Management Plan conditions complied with by project management? (Perceived percentages).

Figure 13 (page 95) shows that three of the four Environmental Control Officers interviewed indicated that Project Management has an 80% compliance rating in respect of Environmental Authorisation and Construction Environmental Management Plan Conditions, while one officer indicated a 60% compliance.



**Figure 13:** Chart depicting the perceptions of the four Environmental Control Officers regarding the compliance (%) of Project Management to Environmental Authorisations and the Construction Environmental Management Plan.

### 6.3 How, in your opinion, can the construction process be improved in order to mitigate environmental impacts?

**Respondent 15** indicated that the first step to reducing the effects of environmental impacts during the construction process is to ensure that contractors appoint adequately qualified and capable environmental officers. **Respondent 16** was of the opinion that a fine system should be introduced to pay penalties for non-

conformances. This may improve the manner in which contractors undertake the work assigned to them.

#### **6.4 How long does it usually take to resolve a complaint?**

**Respondents 14** and **15** indicated that the time frames depend on the nature of the claims. However, most complaints are resolved within a two- week (2) period.

### **7) Grid Maintenance**

Only one grid manager (**Respondent 19**), responsible for vegetation management on those lines currently in operation was interviewed and gave the following responses to the questions posed in the interview.

#### **7.1 Are landowners always notified prior to Eskom's personnel accessing their properties for maintenance purposes? How?**

Yes. There is a list of all affected landowners and their contact details within each grid. They are contacted telephonically for regular maintenance; however, this cannot be the case in emergencies.



#### **7.2 Is the management of biodiversity conducted on a continuous basis? How is it done?**

Yes. There are currently ISO14001 procedures and environmental guidelines that are used throughout the grids.

#### **7.3 How are farmer complaints with regard to maintenance managed?**

There is currently a Liaison Officer who is responsible for visiting the landowners once a year (annually) and documenting all maintenance issues which the landowners may raise.

#### **7.4 Do you participate in Environmental Impact Assessment and Public Participation Processes?**

Yes. Sometimes, however, these functions are carried out in isolation, in which case the maintenance personnel must be involved, especially in brown fields, because the maintenance personnel in each grid are well-informed of local conditions and may

prove to be of great assistance during the process, thereby saving time. They are also better informed about the landowners and can, therefore, share their experience and inside knowledge about the area.

## **8) Animal Interaction**

Only one stakeholder (**Respondent 18**) from Animal and Plant Interaction was interviewed and the following are the questions and responses that were relevant during the interview.

### **8.1 What is the nature of the Issues raised by landowners with regard to the interaction of vegetation and animals with the powerlines?**

- Birds are killed by the powerlines, through either electrocution (usually from Distribution lines) or collision, with Transmission Lines.
- The electro-magnetic fields of new powerlines tend to reduce a cow's ability to reproduce.
- The visual impact.

### **8.2 Are there structures in place to minimise the impact of powerlines on animal and plant life?**

These recommendations are usually made in the Environmental Impact Assessment report. However, the Endangered Wildlife Trust currently assists in the construction phase of the life cycle of the powerline should any animal-powerline interaction be experienced, they go to the site, investigate and advise accordingly. There are various monitoring procedures in place during the operational phase. All animal-powerline interaction is reported to the Endangered Wildlife Trust and placed under the scrutiny of the day-to-day line patrol.

### **8.3 How are search and rescue operations conducted to avoid the extinction of birdlife?**

The respondent indicated that they normally give recommendations on how to work around a bird nest. Removing the bird nest is the last resort.

## 9) Stakeholder Management and Claims

Three respondents from the Insurance department were interviewed the following are the questions and responses that were relevant during the interview.

### 9.1 When does Eskom pay for a claim?

Respondents 7, 8, and 9 indicated that Eskom responds to legal liability claims. If Eskom were to pay for every claim registered, it would be bankrupt. Every claim that is paid is sourced from the electricity tariff. If Eskom were to keep on paying for all claims, the electricity tariffs would increase drastically. Distribution and Transmission need to do the maintenance work and repair all faults timeously in order to reduce this risk of claims.

It is very important to distinguish between claims. There are Operational Claims, which do not fall under insurance, and which are, therefore, not covered by the insurance policy. If an **assert** or appliance fails, owing to power interruptions and/or powerline maintenance, the insurance policy will not cover this.



**APPENDICE A: Example of Questionnaire Used During Interviews**

**Section A: Background Information**

**Instance of Social Interaction:** Expansion Planning

**Stakeholder:** Expansion Planning Personnel

Name \_\_\_\_\_ Division/Organisation \_\_\_\_\_

Gender 

Male
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Female
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Age 

20 - 30
30-40
40-50
50-60
Other

Years of Experience 

0-5
5 +
10+
15+
20+
Other

Language 

English
Afrikaans
Tshivenda
Xitsonga
Isizulu
Isindebele
Isiswati
Isixhosa
Setswana
South Sotho
North Sotho
Other

Race 

Black
White
Asian
Coloured
Indian
Other

**Section B: Standard Questions**

1. Where do you fit into the Life Cycle of a power line? (See Figure 7 on page 28).


2. What do you understand by servitude acquisition?


3. What role do you play in the ability of Eskom to acquire servitudes?


4. How important is it for Eskom to acquire servitudes timeously?

Very Important	
Important	
Not Important	
Not Sure	
Do not know	

5. What are the most obvious problems pertaining to the acquisition of servitudes for transmission powerlines, which might give rise to conflict between Eskom and Interested and Affected Parties?


## Section C: Role Specific Questions

1.1 Is there a published Expansion Plan?


1.2 Is the plan presented to the public?


1.3 Have any changes been made to the plans and how have these changes been communicated to the public?


1.4 How do Eskom's strategies affect Expansion Planning?  
(Coal vs Nuclear Energy vs , Demand Side Management)


1.5 Is there environmental representation during the processes of developing expansion plans?


1.6 How does expansion planning negatively and/or positively impact upon the process of servitude acquisition?
