

Mitigating the Risks

Meeting the growing demand for electricity in South Africa

Over the past few years, South Africa has experienced unparalleled industrial growth. For Eskom Holdings Limited, the country's main electricity provider, it has been challenging to keep up with the increasing demand. Over the years, Eskom had encouraged consumers to conserve power during peak periods to help prevent unplanned shutdowns. However, when the short supply threatened the integrity of the grid and no other options were available, rolling blackouts were scheduled on a rotational basis. This practice is commonly referred to as load shedding.

BY MUZI SHANGE

To meet the rising demand and minimize load shedding in South Africa, Eskom embarked on the biggest capital expansion in its history by building new power stations and major power lines on a massive scale. The company is currently constructing a 400kV transmission line that will span 217 miles from Harding, KwaZulu-Natal to East London, Eastern Cape.





According to 2010 statistics, only 28 percent of the population has access to electricity.

THE ECONOMIC AND POLITICAL LANDSCAPE

According to 2010 estimates, roughly 6.9 million people live in the Eastern Cape, constituting 15 percent of South Africa's total population. Nearly 70 percent of the population live below the national poverty line and less than half live in formal housing.

The Eastern Cape Province, where the new transmission line will traverse, has very steep, hilly and uneven terrains. Since the route travels through densely populated rural and organized agriculture communities, minimizing disruption to the impacted communities was especially challenging during the route selection phase. The tower positioning, designs and line profiling were all influenced by the prevailing mountainous terrain and rolling hills. Yet, because the terrain and dense settlement patterns were not restricted to one particular area, traversing through the rural settlements was unavoidable.

Houses are not permitted within the line's servitude area, and with a 400kV line, a 180-foot width is required. As a result, there were 650 houses affected by the new transmission line. The existing housing structures varied from formal well-built structures to informal and dilapidated homes, consisting of corrugated iron, mud, block and bricks. The houses were scattered and evenly distributed along the route, and they needed to be demolished and reconstructed on an alternate piece of land in order for the project to move forward.

Adding to these challenges are South Africa's unique political characteristics, specifically the arrangement between democratically-elected ward councillors and the country's traditional leadership. The ward councillors are charged with facilitating services such as housing, water, sanitation and electricity through the local government structures. The traditional authorities like the

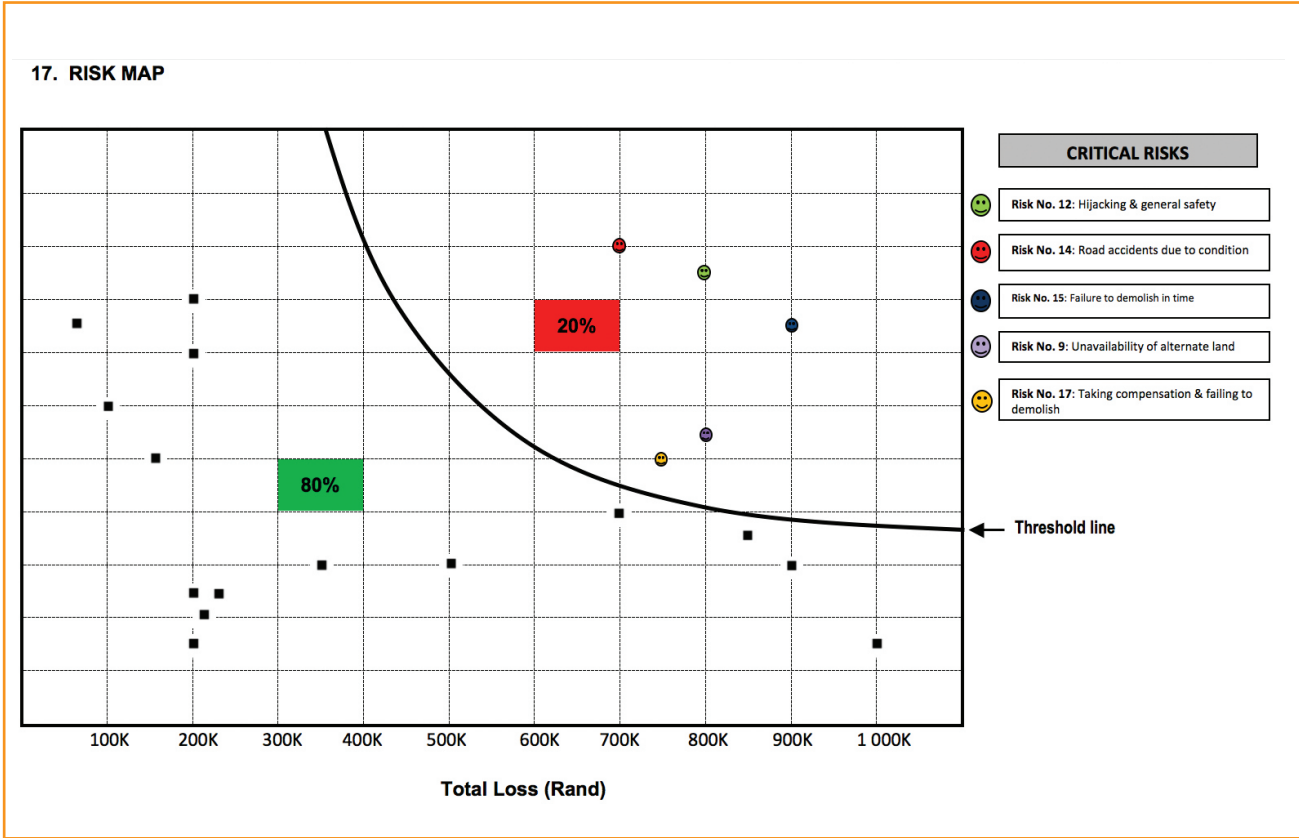
tribal headman and chiefs are responsible for the area's governance, including the land ownership and resettlement allocations. This brings about tension and friction between the two authorities as they jostle for power and control, which in turn negatively affects the pace of infrastructure projects.

RELOCATING THE DISPLACED

A diverse range of technical skills were needed to negotiate, conclude and facilitate the relocation of the 650 houses. Given the political and socio-economic climate, Eskom's project plan included measures to ensure that the displaced persons were consulted and informed about the options, and received assistance in selecting alternative land, accessing basic services and taking advantage of any post-resettlement support that might be needed.

If unmitigated, unplanned and uncoordinated, the concept of involuntary resettlement often gives rise to severe economic, social and environmental risks. When that happens, people face impoverishment, community institutions and social networks are weakened and production systems are dismantled. The end result is that cultural identity and traditional authority is diminished or lost.

Eskom contracted with more than 2,500 engineering, project management and commercial professionals, along with 19 local and foreign engineering and project management companies to serve as partners over the next ten years. To avoid any potential pitfalls, a resettlement plan and policy framework was created and adopted by all those involved. A scope statement was drafted to define the final deliverables, and a work breakdown structure defined other intermediary deliverables and assigned responsibilities for sub-projects, work packages and activities to specific team members.



After identifying all the potential risks, the team developed appropriate mitigation strategies for the ones deemed critical to the project's success.

IDENTIFYING THE POTENTIAL RISKS

Given the magnitude of the project and its relative importance in meeting the country's growing demands for electricity, Eskom determined that managing the potential risks was the most effective way to ensure the project's success.

The company identified the core risks facing the project and measured the potential impact that any one of these risks would have on the project schedule and budget. There were 20 risks that were categorized, and the team used a probability and total loss method to analyze the impact. The team was able to establish which risks the project could not afford, meaning that the probability and cost was too high for the project. Following the identification of potential project risks, a variety of mitigation strategies were used.

RELOCATING FAMILY GRAVES

The people of Eastern Cape possess a deeply-rooted culture that includes burying their loved ones on the property that the family occupies. For resettlement purposes, this meant that in many cases, the relocation of graves was unavoidable. There were a total of 234 graves that required exhumation and reburial as a sub-component of this project. This sensitive process is cumbersome and requires necessary applications and compliance with local traditions and government legislation. And because this is such a sensitive cultural issue, the procedure must be precisely followed. The ritual requires that a goat and cow be sacrificed for exhumation, and another goat and cow for reburial, some of which may be used as food during the actual functions. Although the process is delicate and time-consuming, the team understood the importance of this

step. Staying focused on the project schedule enabled the team to manage each and every move with great care.

ALTERNATIVE LAND

In some cases, only a portion of the home needed to be moved. In these situations, the team was able to relocate the home to an alternative position on the same site - where the majority of the site is outside the servitude, but the house within. When a homeowner was required to relocate because their entire site fell with the servitude area, finding alternative land within the same community, with access to infrastructure, was often difficult. We minimized the risk by engaging traditional leadership to assist in identifying alternative land. We also engaged local municipalities in establishing possible alignments of relocation project with social housing development initiatives.

COMPENSATION

Compensating the relocated families was a challenge on multiple levels. The compensation was based on the replacement cost as determined by Eskom's Quantity Survey Department, and it was expected that a certain number of homeowners would dispute the amount. However, with 80 percent of the compensation amount paid upon signing the agreement, the two-phased compensation plan was intended to motivate the residents to keep their end of the agreement to relocate. There was a risk that the homeowner would take the 80 percent down payment and subsequently refuse to relocate. Regardless of whether this is deliberate or accidental, it is a lengthy process to evict a person without alternative suitable accommodations. To reduce the risk,



The 217-mile transmission line is routed across the Eastern Cape Province's mountainous and uneven terrains.



For a country that suffers from widespread poverty, job creation is just one of the many benefits to the community, the region and the country as a whole.

the team took extra steps to ensure that each agreement was legally binding and added a safeguard by asking the local tribal chief to witness the signing of each agreement. Low literacy levels also made the process of concluding the agreements a challenge, and further, many of the homeowners did not have bank accounts. Considering that compensation can only be done in a form of bank transfer or cheque, homeowners without bank accounts can delay the payment process. Our team initiated discussions with local banking institutions for a dedicated help desk to assist these beneficiaries through on-site visits. With more than 20 accounts opened each day, the compensation process went smoothly and helped keep the project on schedule.

PROTECTION AND SAFETY

Hijacking and the general safety of field staff was always a concern. Some of the construction areas were remote and located off the main routes. Working at the various affected communities using vehicles and squad bikes exposed the project field team to hijacking and robbery. To reduce these risks, the team engaged the traditional local councils, chiefs and municipality at the initial project planning stage to ensure buy-in, support and "protection" from the community. Informing the local police office of specific project schedules also helped maximize the team's safety, as did avoiding working at night and safely hiding valuables such as laptops and cell phones.

POLITICAL MOTIVES

Arranging and securing communal meetings was a huge hurdle because of the lack of communication regarding the vital role that infrastructure plays in each community's long-term growth. Certain villages are controlled by powerful and politically connected individuals who will do anything to achieve their own narrow and selfish motives. Since these individuals typically have no formal title or position in their community, they required some special handling. As a negotiator, it was essential to recognize them and quickly

At the African Utility Week conference in May 2012, Eskom CEO Brian Dames addressed professionals from more than 60 countries on the role of infrastructure investment in supporting worldwide electricity demand.



address their concerns. Such individuals or group interests, if not properly managed, can easily drag down an entire project.

Community and tribal boundary disputes can often arise. Whether the issues stem from social or political sources, buy-in and support is always central when embarking on any project in traditional jurisdictions, as it is not unusual for the traditional leadership to be uncooperative. The institutional arrangements between the leaders and the powerful individuals within the various communities played an important role in keeping the project moving forward. This required transparency, understanding of protocol and political maturity.

SCHEDULE DELAYS

As with many large-scale projects, the overall availability of information can often cause lengthy delays. Mapping of the affected houses in a rural area of Eastern Cape was difficult given that much of the information is simply unavailable. In addition, there is insecure land tenure, a tribal system, as well as unsurveyed and unregistered state land. While some of the homes have absent owners who work outside the area, others are not even traceable or known by their own neighbors.

Government approvals can often be a lengthy and cumbersome process, and it is not uncommon to experience long delays. Considering that tribal land disposal is done in accordance with the Interim Protection of Informal Land Rights Act, the agreements must be approved by the executive branch of government. Demolishing plans require municipal approval so that resettlement can be within the Municipal Integrated Development Plans.

The timeline for demolishing the homes was also central to the project's success. Once the 80 percent down payment was transferred, any failure to demolish could result in significant construction delays and penalties. The project team was able to reduce this risk by ensuring that the affected homeowners were compensated in time, regularly informed about the project schedule and provided with any relocation support or assistance needed.

LONG-TERM SUSTAINABILITY

Considering the scope and challenges Eskom faced, many people believed it was impossible to complete the project within the timeline and budget. However, the relocation phase of the project was not only completed on schedule and within budget, it was done with adherence to a high-quality standard. Construction of the line is underway parallel to the resettlement of houses. The project team proved that with thorough planning and a strategic approach to managing the risks, success is likely to follow.

With a project of this enormity and significance, there are invaluable benefits for the impacted communities, the region and the country as a whole. Some of these include job creation, skill development and training during construction, long-term sustainability of electricity supply, improved quality of supply and growth opportunities for local businesses. Eskom's capacity expansion budget is roughly \$44 billion through 2013 and expected to double by 2026.

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Muzi is a Senior Advisor for Land & Rights Acquisition for Eskom Group Commercial Commodity Department, where he is involved in resettlements, land acquisitions and expropriations. He has expertise in the areas of linear infrastructure development, land reform and economics, water resource management and energy. He currently serves as Vice President and President-Elect of IRWA Chapter 83, the South African Rights of Way Association (SARWA) and is a Chair of SARWA Government Partnership Committee. A Registered Engineering Surveyor with South African Council for Surveyors, Muzi has an undergraduate Degree in Land Surveying from Mangosuthu University of Technology and also holds a Master Degree in Environment and Development - Land Information Management from University of KwaZulu-Natal.

