

BE-173-E September 2011

# VOLTIUM, Inc.

Summer was approaching and Daniel Ragot, Voltium project manager, still wasn't sure what he should do. He wondered if he was trying to impose Western standards on solving problems in Africa, losing sight of the real purpose of the project that he had been directing for two years.

The situation called for a quick decision and he was pretty sure he knew what "the right thing to do" was. All the same, "the right thing to do" would cause more delays in the commissioning of the power lines and, as a result, more suffering among a population already ravaged by poverty, poor harvests, cholera, malaria and other diseases. Aside from that, the pressure from Europe to "finish up" intensified every day because the project was not achieving its expected profit goals. He had been mulling over the decision all night...

## The Situation in March

Two long years of work had gone by since his first visit to Dambo, a territory located in the western area of a Central African country. After overcoming complex situations, problems, theft and accidents, the installations were almost finished and ready for commissioning. All they needed was the technical approval of the contracting company, the National Electricity Company (NEC); then they would finally be able to bring this part of the project to a close.

There were eight villages in this part of the country that had benefited from the European Union's (EU) cooperation program. As a result, over 10,000 people would gain access to electricity. In addition to this improvement to people's homes, there were other advantages to having electricity in the villages: an electrical connection for eight public health centers would rapidly improve the poor existing health care standards, lighting would increase safety and reduce the impunity with which robberies and kidnappings were carried out, and electric

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pumps and water filters could be installed as well as electric flour mills. Electricity would also allow for a connection with the outside world (and the 21st century...) through television, radio and mobile phones (whose batteries could finally be charged in the villages). Fans could be installed to combat the heat, and refrigerators could be used to keep food and beverages fresh.

In the speeches that Ragot had given in February two years earlier while presenting the project to each of the villages, he had always repeated the same phrase: "In less than two years, you will have electricity." The locals had heard the same promise for decades, since the country's independence in the 1960s. During every election campaign they had been promised electricity, running water, health centers, etc, but these things never came. That's why Ragot always insisted, "I am not a politician; I'm an engineer. I am not here to win votes, just to build power lines. We need the cooperation of the people as well as the administration and the traditional authorities in the region."

This was Ragot's first overseas project – he had earned his BA just three years earlier – and he was proud of it. He expected to complete the work on schedule and return to the villages to say that both he and his company had fulfilled their commitment, and that the people would finally see fulfilled the promises they had been made.

Although the reports coming from the worksite were good, Daniel Ragot had wanted to ensure fluidity in his relations with the NEC by hiring – and naming area coordinator – Alfred Bana, a former NEC employee who was familiar with the technical requirements of the contracting company and with its representatives in the Dambo region. This man's ability to communicate with his former colleagues could prove useful in the final approval and implementation of the power lines.

## The Project

Two years earlier, in February, after several years of negotiations with various organizations within the EU and with the authorities of the Central African country, the company Voltium launched the first EU cooperation program aimed at rural electrification, consisting of the electrification of seventeen villages divided into two working areas. The project was of utmost importance for the country, which had a rate of access to electricity of less than 15% and an average power consumption per capita that was thirty times lower than that of the EU. The lack of infrastructure prevented the development of this young country, with more than 40% of the population under 14 and per capita income of about \$2,000 per year, compared to \$32,200 in the EU (the exchange rate at the time was 1.3 dollars per euro).

The total contract amounted to  $\notin$ 4,550,700 (see Exhibit 1) and the project was particularly complex because it involved two very heterogeneous, separate areas that were difficult to access. One of the areas, in the east, was very humid and fertile with dense vegetation and rugged terrain. The second area, Dambo, in the west of the country, was located in a province made up of a group of sparsely populated departments organized into small traditional

kingdoms, which were predominantly Muslim and dominated by local oligarchies.<sup>1</sup> It was in an area of the Sahel, a flat and dry savannah to the south of the Sahara with very little rainfall, poor soil, and very few development opportunities for its inhabitants.

Epidemics of cholera and typhoid were frequent, and there were many deaths from malaria each year. Life expectancy was just over fifty years and the infant mortality rate exceeded sixty per thousand births (in the EU the rate is 5.61/1,000). The Human Development Index values (HDI is an indicator created by the United Nations Development Programme – UNDP – to measure countries' levels of development) were between 0.4 and 0.5 each year, ranking the country among the thirty least-developed countries in the world.

## Voltium

Established twenty-five years earlier by the former executive of a major electric company, Voltium was a small European company fundamentally dedicated to the manufacture, supply and installation of electrical materials and equipment. It also ran "turnkey" projects in both the energy and water sectors. Its largest market was sub-Saharan Africa, from Mauritania to Ethiopia. At the time, Voltium was in a difficult situation: it had suffered several years of losses with no projects underway.

The implementation of the rural electrification project broke that trend and represented an opportunity to get the project division back on track. However, because this was its first project in that country, there was no guarantee that it would be profitable. In a new environment, any of the estimates they used for their calculations could be wrong, a fact that would greatly increase the cost of the job. A bad result could have serious consequences for a family business that could not afford to continue with yearly losses (see Exhibits 1 and 3).

## The Rural Energy Office

Whereas the European interest was represented by Voltium, the local agency responsible for conducting the project in the host country was the newly created Rural Energy Office (REO). Its director, Alpha Sy, was among the biggest promoters of the project, which, in his opinion, would definitively transform the REO. Up to that point, the agency had been responsible for conducting feasibility studies and seeking out funding for rural electrification projects. This was the first major project it had to handle. However, the REO suffered from some of the endemic problems that affect administrations in many countries in this part of the world: poor organization, lack of motivation, bureaucratization, indolence and corruption.

<sup>&</sup>lt;sup>1</sup> Most of the countries that comprise the Sahelian and sub-Sahelian belt south of the Sahara have an alternative and/or complementary system of government, which exists alongside the administrative authorities of the corresponding modern states. They are organized into small traditional kingdoms, most of which existed before European colonization and which often stretch across current borders. The king is often the political and religious leader in the area and has a government of nobles or notables who assist him in his duties, which range from tax collection to the administration of justice. Frequently, these traditional authorities have more power and credibility among the people than do the State authorities. Their arbitration contributes to the resolution of local conflicts and helps maintain some organization in remote locations outside of the State's reach.



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#### Alpha Sy's Family

Alpha Sy had succeeded in including his village, Dambo, and seven others in his native region, on the list of villages to be electrified. He could not miss out on this opportunity to help his "brothers" and potential voters (Alpha Sy was his region's Presidential Party representative), see their dream of having electricity in their homes come true. For years he had been promising to bring light to "his villages" and it seemed he would finally be able to keep his word.

Alpha Sy came from a family belonging to the high nobility in the west of the country. His father had been king of a vast territory until his older brother, Mohamed Hayatou, succeeded him on the throne.

In this region, where Islam is combined and mixed up with different animist faiths, the king is considered divine. Alpha Sy's father and his brother, Mohamed Hayatou, were therefore beloved by the local population. It shocked foreigners that, well into the 21<sup>st</sup> century, there were still villageswhere subjects knelt or prostrated themselves the presence of their kings, not having the right to look them in the face.

Luckily for Alpha Sy, the combination of his training as an electrical engineer in Germany and the country's political system, which was based more on the tribal balance of power than on real democratic principles, had provided him automatic access to a high-ranking position within the administration. After working for years for the NEC, he transferred to the REO when it was created in the mid-1990s.

His younger brother Yaya Amadou, third in line for the throne, had also been trained as an electrical engineer. He benefited from the same system to become the head of the technical division of the NEC's western region. The technical approval of the project and its subsequent implementation depended on him.

After Daniel Ragot – escorted by Alpha Sy and his entourage – had visited the eight villages in the Dambo area that were to receive electrification, he had the honor of being received by His Majesty Mohamed Hayatou, who lived in a lavishly decorated palace: it had floors covered in carpets, stables full of powerful horses, and lush gardens. Though it was not an extraordinary work of architecture and did not house any highly valuable treasures, the palace was well-built and equipped with all the comforts of the West – a far cry from the squalid adobe and thatched-roof dwellings in which most of the area's population lived (see Exhibits 4 and 5).

After nearly an hour of conversation with the king about the beauty of the area and of his palace, and about the peaceful coexistence of tribes and religions in the kingdom, Hayatou made a request that caught Ragot by surprise: "I need a couple of good generators for the palace; the electricity goes out too often." Ragot could only say that he would consult with company management, as that kind of decision was not up to him alone . The king's request was ambitious as well as surprising: two generators would cost at least  $\notin$ 7,000 each in Europe or South Africa; in addition there would be the transportation costs, which would include about  $\notin$ 4,500 for shipping, customs duties calculated at 7% of the CIF (cost, insurance and freight) value, plus  $\notin$ 4,000 for road transport to Dambo.

Although the king's request surprised him, Ragot had been in Africa for several months and had begun to understand how things worked. Whether it was the government, the police, or the major companies that held the monopolies on water, electricity or communications, anyone orchestrating or participating in a deal had to be rewarded financially. "The dossiers don't have legs, someone has to push them in order for them to move forward," he had been told more than once. The whole administration was affected by this system of double charging, which reduced both government and business revenues by distributing them among the enormous mass of civil servants and middle managers. While this system hampered the functioning of the State, prevented its economic take-off and hindered the success of many companies, it also compensated for the low wages of the civil servants and middle managers who were responsible for whole families in the broadest sense of the word (spouses, children, parents, brothers, uncles, cousins, close friends, etc.), or even for entire villages. An important portion of society subsisted based on this system of private "taxes." Perhaps that is why the government hadn't taken the measures necessary to combat these ancestral practices, and why they had therefore expanded, contaminating all sectors of society and all types of economic activity.

In this case, although it was true that the king was responsible for maintaining the royal family (multiple wives and all their children) along with a large part of the government and the entire palace service, which included more than twenty people and their families, Ragot considered that the taxes the king charged the farmers who cultivated his land, and the shepherds who grazed their flocks on it should provide more than enough revenue to cover the operation and the upkeep of the palace and court. It was hard for him to believe that a king who, thanks to the political abilities of his brother, Alpha Sy, was about to see his subjects gain access to electricity after decades of unfulfilled promises, could have so little regard for the project as to ask for two generators for his palace.

### **Project Development**

If there was any area where Daniel Ragot was not expecting to have problems, it was in Dambo. Alpha Sy's power and his influence over local administrative authorities, from the governor to the prefect, made Dambo seem a much less complicated worksite than any other. During the initial visits, nothing gave even a hint of the difficulties that would arise in the coming months.

In the initial phases, the surveying took place without problems. After the engineering and manufacturing phases had been completed and all the materials had been transported to Dambo, the workers began clearing brush and cutting trees. These two tasks are complicated in forests or in jungles, but in the savannah there are only a few baobabs or acacias to be cut down. And yet, things began to get complicated when the king's men halted the tree cutting on the grounds that the king had not been paid any taxes. The men confiscated the Voltium workers' material. King Mohamed Hayatou did not leave it at that. He used his influence to have the alleged damages caused by Voltium broadcast on national television. Fortunately, Alfred Bana, Voltium's area supervisor, was so persistent that the administrative authorities (prefecture and police) intervened, and he managed to diffuse the situation. Soon after, King Mohamed Hayatou was revealed to have sold the wood obtained from the trees felled to build the line.



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When Bana called Ragot to inform him of the situation, Ragot could not believe what he was hearing: instead of cooperating, Mohamed Hayatou was doing everything he could to delay the REO's – and his brother's – star project, even at the cost of harming the local population: that is to say his subjects.

Neither Daniel Ragot nor Alfred Bana thought that Hayatou's opposition was an insurmountable obstacle, because his position was rather weak: it was difficult to oppose a project that would be so beneficial for the population. However, this situation put them on guard against another problem that could be more complicated: where would the younger brother, Yaya Amadou – the man who would be responsible for giving the final the installations his final approval – stand? As head of the technical division at the NEC in Dambo, it would be within his power, when the time came, to accelerate, delay or impede the project's implementation.

After several conversations with Alfred Bana and Alpha Sy, Daniel Ragot was not sure whether to accept their proposal to somehow include Yaya Amadou in the project in order to ensure, at the very least, his "lack of objection" to the completion of the work. The proposal was simple: let Yaya Amadou choose which subcontractors would carry out a portion of some of the simplest (low voltage) work. Throughout the project, Ragot had given a lot of importance to the way things were done, and it seemed to him that a project financed by cooperation funds should also be didactic and exemplary. He thought the project should serve as an example of how things should be done, through transparent and fair processes; he wasn't at all comfortable with that kind of favor. He finally agreed to the proposal on two conditions: the price per unit of work had to be the same as with the other subcontractors and all of them would be subject to the same penalties for late and/or poor execution.

#### Yaya Amadou

Yaya Amadou did not have good reputation at his company, the NEC. Diffident and haughty (after all, he was a prince), he was perceived as an inefficient worker who spent most of his time "unavailable." The advantage of working in a remote area was that he could easily "disappear" and justify his absences later by alleging he was checking the lines to detect and repair infrastructure problems. It was not uncommon for a week to go by without his appearing in the office or even answering the phone. Outside the NEC, he was not particularly popular with the few subcontractors who worked in the west and who knew there would be a "toll" to pay at the end of each job, usually amounting to 1 or 2% of the turnover. As was the case in many other agencies in the country, subcontractors reserved a portion of their profits to "give thanks" for having been awarded a job contract and commission. Since it was a fairly widespread, socially tolerated practice in the country, and subcontractors did not usually complain, Yaya Amadou's superiors did not seem concerned. By hiring subcontractors who were associated with Yaya Amadou, Daniel Ragot thought he had avoided the problem.

However, he could not be sure of the prince's ultimate position, because his haughty character made direct dialogue difficult: he rarely spoke directly to strangers and never entered into discussions of his affairs. He always sent his messages through intermediaries who made his requests for him.

Ragot did not think Yaya Amadou would oppose the implementation of Alpha Sy's flagship project, given that he publicly declared his committment to its advancement and implementation. Besides, the project would add nearly two hundred new homes as subscribers to the NEC, bringing in significant revenue.

## The Results

Daniel Ragot took advantage of the winter holidays to meet with company management. The atmosphere was very negative, and turnover had suffered because of the crisis. In addition, the project results were diverging further and further from their goal: initial estimates had given a gross margin of 12%, but the updated forecast yielded a margin of 9%, and only if there were no further delays and the installations could be operational before May (see Exhibit 3). It was true that the project had been much more complicated than had been expected, but if it took too much longer, the situationmight deteriorate rapidly. The company managers had placed all their hopes on this project and had based their forecasts on its success; they were counting on using the margin to recover from the losses they had accumulated over recent years. Voltium was a family business and the owners could not continue sustaining such bad results, which they considered a loss of their patrimony. A gross profit of less than 7% might cause the partners to question the company's viability.

Given its indirect costs of around €45,000 per month – including all office and on-site personnel, expatriate staff, office space rental, apartments, cars, etc. – extending the project three or four months would have serious impact on its results. The project monitoring team that had been organized in the country was divided between a central office in the capital – for administrative, financial and general aspects of the project – and a small base on each worksite, where there was also a warehouse and several supervisors.

1.	Personnel	10,095.34
2.	Office and general expenses	7,941.82
3.	Vehicles	1,815.67
4.	Travel and lodging	5,716.84
	Total central office	25,569.84

#### Monthly Cost of the Central Office (in euros)

#### Monthly Cost of Dambo Area (in euros)

1.	Personnel (local spending)	6,121.11
2.	Vehicles	8,140.78
3.	Warehouse	2,192.25
4.	Other expenses	457.35
	Total base Dambo	16,911.49
	Total monthly cost	42,481.16

Source: internally prepared.

The instructions issued by management were clear: finish the project one way or another, without losing even one more month.

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### Alfred Bana

Daniel Ragot thought that he had done all he could to push the project forward, and he thought he had given Yaya Amadou enough consideration by having hired the subcontractors he had proposed. However, in late February he decided to bring up the subject again with Alfred Bana. The conversation soon took an unexpected turn when Bana said,

You have made two mistakes with Yaya Amadou. You have not taken care of him and you have not treated him like a prince. The only reason that he does not answer the phone, that he postpones his visits and instructs his agents to find one reason or another to push back the implementation is that he is waiting for us to give him something he has not yet received. If you want to finish the project quickly, all you have to do is put a decent amount in an envelope and give it to Yaya Amadou. This is not Europe.

Ragot didn't know what to think. He had been working closely with Alfred Bana for more than a year and trusted him. However, the other supervisors weren't fond of him: he was refined, intelligent, a great speaker, and it was rumored that he had occasionally made agreements with subcontractors to issue additional invoices for work that he would certify so they could split the payment between them. Nothing had ever been proven and it seemed wrong to Daniel Ragot to convict someone without proof. However, the complaints his colleagues made had caused Ragot to have doubts about him in recent months.

On the other hand, Ragot also knew that the employees, Alfred Bana included, weren't working as hard to finish the job as they had when it had begun. After all, finishing the job would mean the cessation of their activity and the end of the contract for all of them. Had Yaya Amadou chosen Alfred Bana to convey his message to Ragot? Could Bana be pushing Yaya Amadou to delay the commissioning of the lines to maintain his employment for a few more months? Could this have anything to do with the problems Mohamed Hayatou had caused at the beginning of the project? Aware of Daniel Ragot's urgent need to finish the project and of the pressure he was under from Europe, could Alfred Bana and Yaya Amadou have agreed to ask him for the money so they could split it?

### The Decision

On Tuesday morning, there were many things running through Daniel Ragot's mind. Given the cholera epidemic that was spreading in the area (see Exhibit 6), if the completion of the project could improve the quality of life of thousands of people, was it really so terrible to pay that "decent amount?"

# Exhibit 1

Estimated Result of the Electrification Project in January of Year 0 (When the Contract Came Into Effect), January of Year 1, and January of Year 2 (in euros)

	January Year 0	January Year 1	January Year 2
Income	4,550,700	4,550,700	4,550,700
Materials, equipment, etc.	2,550,400	2,645,500	2,640,510
Engineering and studies	50,000	75,000	61,500
Logistics	245,000	195,000	203,300
Installation and civil works	650,000	630,000	621,755
Local structure	509,000	567,000	612,000
Total	4,004,400	4,112,500	4,139,065
Project operating profit	546,300	438,200	411,635
Margin/sale of the project	12%	10%	9%

These forecasts were updated every year based on expenditure and planned expenditure through to the end of the project. Each year they were adjusted by introducing the changes that had occurred during the course of the project with respect to the initial estimates. As an example, it is evident that the fact that the project was completed later than originally planned meant a considerable increase in spending on the local structure.

Source: own elaboration.

# Exhibit 2 Voltium Projected P&L Statement for Year 2 of the Electrification Project

Sales	4,335,054
COGS	3,412,499
Gross margin	922,555
Personnel	304,540
Operations	552,000
Operating profit	66,015
Financial expenses	25,000
Pre-tax profit/loss	41,015
Taxes	14,355
Net profit	26,660

The project's profit/loss is included in the Sales and COGS items in the Voltium P&L statement. The amounts reflected in the items Personnel, Operations and Financial expenses correspond only to Voltium's activity in Europe. Given that the duration of the project was two years, the costs and revenues derived there from were distributed at a rate of 30% - 40% - 30% over Year 0, Year 1 and Year 2.

Source: own elaboration.

# Exhibit 3

Voltium Balance Sheet on December 31 of Year 1 of the Electrification Project

Assets		Liabilities	
Current assets		Current liabilities	
Cash	50,435	Trade creditors	350,300
Inventory	305,010	Other	134,500
Trade debtors	740,230	Long-term liabilities	
		Short-term debt	82,500
		Long-term debt	395,000
		Net equity	
Fixed assets		Capital	100,000
Net fixed assets	340,825	Reserves	374,200
Total assets	1,436,500	Total liabilities	1,436,500

Source: own elaboration.

# Exhibit 4 Photographs of the Villages



Source: Case authors.

# Exhibit 5

Palace Similar to That of Mohamed Hayatou



Source: Case authors.

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## Exhibit 6 Health Conditions in the Area

#### Cholera in West Africa

#### August 26, 2005

The current wave of cholera outbreaks started several weeks ago in West Africa. So far, 31,259 cases and 517 deaths have been reported in eight countries (see map below). Seasonal factors, such as the rainy season, along with population movements in the area contribute to this unusually high incidence of cholera.

The WHO, with international and national health partners, is providing technical support to the ministries of health at the country and sub-regional levels. The WHO is working to strengthen surveillance activities. Supplies for case management and chlorination of water have also been dispatched to some of the countries.

#### Breakdown by country:

**Burkina Faso:** 295 cases including 8 deaths (case fatality rate -CFR 2.7%) have been reported in the town of Ouagadougou as of August 22, affecting sectors of the town with precarious water and sanitation conditions.

**Guinea:** 571 cases including 32 deaths (CFR 5.6%) have been reported between mid-July and August 4. Control efforts are ongoing.

**Guinea-Bissau:** 9047 cases including 172 deaths (CFR 1.9%) occurred between June 6 and August 21 in the country. The regions of Bissau and Bimbo account for 83% of cases; cholera is now spreading to remote areas with 10 regions out of 11 affected.

Liberia: 703 cases including 29 deaths (CFR 4.1%) have been reported for the period from August 1-21, including Sinoe County.

Mali: 158 cases including 20 deaths (CFR 12.65%) have occurred between June 20 and July 24. The situation appears to be under control, although cholera is an ongoing problem in Mali.

**Mauritania:** 497 cases including 10 deaths (CFR 2%) have been reported in Nouakchott from July 20 to August 10. The country reported a total of 717 cases from early May to August 12 occurring in 4 regions (Brakna, Guidimakha, Nouakchott, and Traza).

Niger: 125 cases including 15 deaths (CFR 12%) have been reported in Bouza, Tahoua region with 3 districts affected betweenJuly 13 and August 24. Control measures are being put in place, although the risk of waterborne diseases has been exacerbated by the current humanitarian situation.

**Senegal:** 19 863 case and 231 deaths (CFR 1.1%) have occurred during the outbreak which began in January and peaked at the end of March. Since mid- June, an average of 400-500 new cases per week have been reported, with 3,541 cases reported during the last 2 months.



