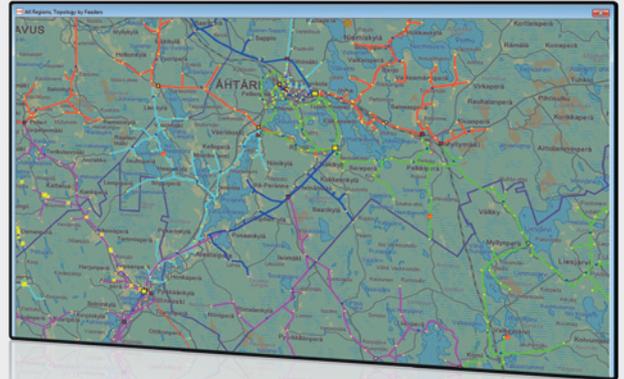


MicroSCADA Pro DMS600 Saves money and the world



MicroSCADA Pro DMS600

MicroSCADA Pro extends traditional SCADA functionalities by providing geographically based network views and advanced distribution management functions over the entire distribution network. It ensures you can control your process, manage your field crew and provide outstanding service to your customers with a single system.

The latest study into distribution efficiency demonstrates that ABB's MicroSCADA Pro can improve reliability and reduce costs, but the research from Aalto University also found that automating the distribution network will significantly reduce carbon emissions, and can improve the living conditions for millions of people living in the developing world.

The study used figures from the World Bank, the International Energy Authority, local utility and previous studies demonstrate that a Distribution Management System such as MicroSCADA Pro could reduce carbon emissions by 344,000 tonnes a year in Addis Ababa alone. Applied globally that number rises to more than nine million tonnes a year, and that's on top of the cost and health savings which come from automation. Sub-Saharan Africa, from where much of the improvement is drawn, has impressively-green credentials when it comes to generating electricity. Large scale hydroelectric projects create power with a minimal carbon dioxide footprint, but getting that power to those who need it is a constant challenge. A company operating in sub-Saharan Africa can, according

to the study, expect to lose power almost nine times a month, and with the outages averaging more than five hours, it can turn the business into an unwanted lottery.

Which is why so many companies install their own generators, generators which are neither as efficient or as cost effective as the national supply, but are a necessary expense when the electricity supply is so unreliable. In Nigeria, for example, 86% of businesses have installed their own generating capacity. But it isn't lack of electricity which drive companies to install in-efficient generators – droughts do occasionally interrupt the supply, but the real problems lie in the distribution network, which is where a technology like MicroSCADA Pro can help.

First step in solving the problem is finding the problem

The distribution automation incorporated within MicroSCADA Pro not only provides unparalleled visibility of the operating network, but it can reduce the duration of outages. The system can automatically detect and locate a fault, lever the network topology to restore service where possible, all before the customer has had time to pick up the phone.

MicroSCADA Pro

Power and productivity for a better world

A prime example

To isolate any other factors, and provide more-concrete figures, the research focused on Addis Ababa and how a national deployment of MicroSCADA Pro could improve power delivery in the country.

Addis Ababa is an ideal candidate. The city has 2007 kilometers of medium voltage line, the vast majority of which is on overhead lines, and 17 substations connecting 97 feeders. The distribution network includes 147 switching stations, but while those could be automated they are currently switched manually. The lack of distribution management makes Addis Ababa perfect for a study demonstrating the affect that MicroSCADA Pro DMS600 can have.

In the twelve months following July 2010 the people of Addis Ababa suffered 19,537 power outages, with an average duration of 1.04 hours, providing a baseline for the study. In order to measure the potential of distribution automation the entire network of Addis Ababa was simulated using an installation of ABB's MicroSCADA Pro DMS600. Some estimations were used to recreate the network loading, but the quantity and severity of the faults was drawn from the gathered statistics.

Not every grid problem can be addressed by automating the distribution network, and a detailed breakdown of the reported faults showed that about 13,000 of them would need more-radical measures to address. But that still leaves almost seven thousand occasions where robust distribution automation, in the form of MicroSCADA Pro, could have made a real difference.

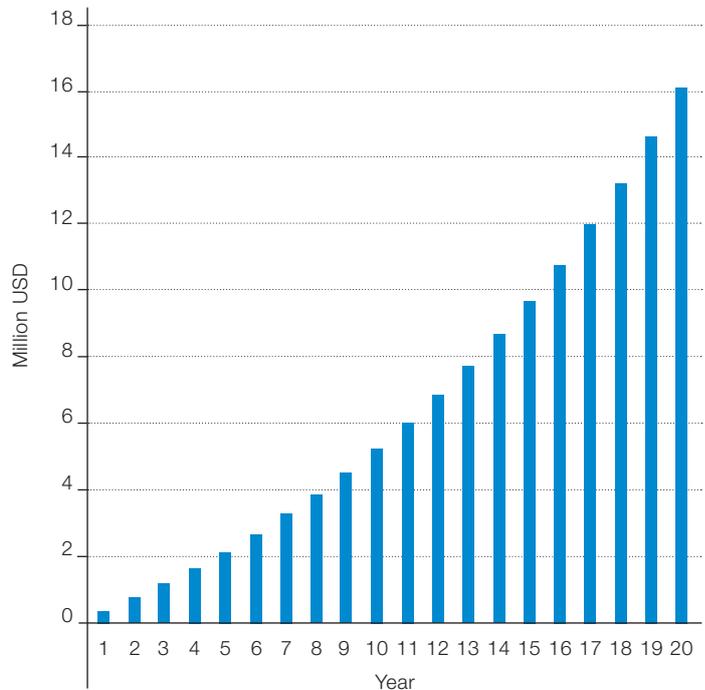
Analysing the data produced by the simulation the researchers found that outages could, on average, be immediately reduced by 30% simply by responding faster to faults. That could save the distribution company \$13,593,830 over the 20-year duration of the experiment, \$2m in the first five years, ensuring a healthy return on a green investment.

Simulation results before and after automation

	Without Automation	With Automation	Difference %
SAIDI (h/20 a.)	168,4	123,6	-26.64
E_{NDE} (TWh/20 a.)	1,908	1,333	-30.14
Cost of outages (\$/20 a.)	45M	31,5M	-30.14

Simulation results

Total discounted cost savings of over \$16 million over the studyperiod



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The benefits of reducing carbon emissions are harder to quantify. The study found that a network could reduce carbon emissions by 344,000 tonnes, resulting in an environmental saving alongside the financial one. Even harder to quantify is the life changing effect of clean cooking in domestic homes. In sub-saharan Africa 76% of people are burning biomass to cook their food – in Addis Ababa alone they're cutting down 500 square kilometers of forest every year, while hydroelectricity is going to waste because the distribution system isn't able to deliver.

ABB's promise has long been "Power and productivity for a better world". What this study demonstrates is that MicroSCADA Pro can deliver the power, improve productivity, and truly create a better world for those living in it.

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