

**A.5.1. Des disjoncteurs isolés au gaz aux câbles en zone rurale**

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Résumé

Les exploitants de réseau de transport d'énergie électriques rencontrent de plus en plus de difficultés à construire de nouvelles lignes électriques. Parallèlement le besoin de transport de l'énergie du site de production vers des zones très habitées ou fortement industrialisées s'accroît. En effet les principales critiques formulées à l'égard des lignes HTB sont l'intégration paysagère et parfois l'effet des champs électromagnétiques sur la population avoisinante. Inconvénients que la câble à isolation gazeuse permet d'atténuer car il n'est pas apparent et que les champs électromagnétiques résultants sont nettement plus faibles.

Research Programme

A research programme started by EDF now investigates the feasibility of a gas-insulated cable to transport electrical energy in the range of 2000 - 4000 MW over distances up to 100 km and more.

To be part of this research program a consortium appear to be the best arrangement to gather various experiences: GTMH for Civil Engineering, Pipeline Technologies, Siemens Electrical for Engineering, Gas-Insulated Bus Ducts and Lahmeyer International for Engineering.

The consortium advantages are to have the best experts of each partial field and to merge the knowledge into optimum solution.

Needs of Energy Transport

Electrical energy is usually produced and consumed at different locations therefore a transportation is necessary. Also very often electrical energy is generated at low popu-

A.5.1. From gas insulated switch-gear to cross-country cables

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Abstract

Network operating companies are faced with increasing difficulties to plan and install new overhead lines. At the same time they are under growing pressure to transport energy from producing areas to consuming areas like metropolitan or highly industrialised regions. Main objections by the population living close to overhead lines are about the visual impact on the scenery and, from time to time, the electromagnetic field possible influence. Gas insulated cables have the potential to overcome these problems: they are not visible and electromagnetic fields are much lower.

lated areas while most of the load is consumed at dense populated or industrialized areas. To connect these areas to power generation unit right of way is needed in areas where space is a scarce resource.

The visibility of a power transmission system is more likely to be noticed in dense populated or landscape protected areas than elsewhere. And with higher attention more critical voices are likely. A no visible power transmission system has better acceptances potential in the public.

The metropolitan areas around the world are growing, at some places with dramatic speed. The need of more energy is growing in parallel and the available space for the way of right is declining.

Available Systems

Today three systems are available as an alternative to overhead lines: Superconducting cables, synthetic cables and gas-insu-