

QUESTION ON NOTICE

No. 739

asked on Tuesday, 24 May 2005

MR MULHERIN ASKED THE MINISTER FOR ENERGY AND ABORIGINAL AND TORRES STRAIT ISLANDER POLICY (MR MICKEL)—

QUESTION:

Has any research been undertaken by Energex and Ergon Energy into lighter, fire resistant fibre composite cross arms?

ANSWER:

New materials are being investigated, with fibre composites offering several potential advantages. I am advised that ENERGEX and Ergon Energy use about 15,000 crossarms in their electricity distribution networks every year. Most of these are made of hard wood which is becoming more difficult to supply at the required high quality.

ENERGEX and Ergon Energy have been investigating the use of fibre composites in the electricity distribution industry for some time. Because of the need to ensure the safety of staff and the public during the development and testing phases with new materials, the focus has been on a scientific approach to any investigation activities. ENERGEX and Ergon Energy have been working with Wagners Composite Fibre Technologies (Wagners) in Toowoomba for about two years to identify the electrical and mechanical properties for fibre composite crossarms which would make them suitable for use in the distribution network.

The crossarms are expected to have a life span of more than 40 years, compared with 20 years for hardwood. The new crossarms weigh 15 kilograms, compared to 50 kilograms for a hardwood crossarm which allows for a lower manual handling injury risk for workers and more efficient installation.

Over a year ago, Ergon Energy commenced a small trial of fibre composite crossarms with the installation of a small number of Wagners' fibre composite crossarms into its distribution network near Wagners' factory in Toowoomba. In March 2005, ENERGEX commenced a more comprehensive trial of 1,000 of Wagners' fibre composite crossarms.

Both these trials are ongoing, with the crossarms being regularly inspected against a range of criteria. Feedback from the trials will assist in the development of further improvements to the materials and designs of the fibre composite crossarms.

I am advised fibre composite crossarms:

- are resistant to damage from bacteria, fungus, insects and weather;
- are strong, lightweight and will not shrink;
- are environmentally safe with no chemical preservatives;
- will deflect, rather than break, then return to their original shape when normal loads are restored;
- have excellent insulation properties, which impede electrical tracking from polluted insulators and therefore reduce the number of pole top fires, feeder lockouts and television interference; and
- have good fire retardant properties.

The University of Southern Queensland (USQ) has also undertaken ongoing work in this area. ENERGEX and Ergon Energy have been discussing proposals for joint co-operation between ENERGEX, Ergon Energy, the Department of State Development and Innovation and USQ to investigate uses for composite materials (including crossarms) in the electricity industry.

As part of the joint development exercise, ENERGEX and Ergon Energy have offered to carry out in-field trials of the new materials. In addition, Ergon Energy has offered time in the Ergon Energy high voltage test laboratory at Virginia to identify the electrical insulating properties of any new fibre composite material, including the material's ability to impede electrical tracking in heavily polluted areas (eg. close to the coast) for long periods without significant degradation.

Because of its implications for distribution networks throughout Australia, this research and development work and the in-field trials are being monitored by the Energy Network Association Power Poles and Cross Arms Committee. This committee is an Australia-wide electricity industry body aimed at developing common approaches to power pole and crossarm specifications and to maintenance practices.