Insulation degradation of HV equipment continues to be a major concern of electrical utilities world-wide. In the new marketplace the forced outage of a large plant element due to insulation breakdown may cost millions of dollars in repair and outage costs, as well as affecting market share. Since a large proportion of the capital equipment of Australian electrical industry is nearing the end of its design lifetime it is important to closely monitor insulation condition. With scheduled on-line condition monitoring and preventative maintenance, the service life of electrical plant could be dramatically extended and incipient faults accurately determined. Advanced techniques for insulation condition monitoring (ICM) and new strategies of reliability-centered maintenance (RCM) can significantly improve plant asset management.

The course is designed to provide a thorough coverage of up-to-date technology on insulation condition monitoring, especially on-line condition assessment of electrical plant. A focus will also be given to the modern maintenance strategies using RCM. It has been proved that on applying the new techniques to plant management, higher plant availability as well as greater safety and longer equipment life have been achieved. The lectures will be given by experts whose expertise covers the range of skills from research and development to practical field tests and management of electrical plant. The course is designed to:

- Develop participants’ knowledge and skills in current trends and applications for the life management and assessment of HV system assets associated with electricity supply and industrial installations.
- Investigate new technologies for monitoring the condition of HV equipment.
- Provide practical guidelines for assessing the operational performance of power supply assets.
- Provide a forum for discussion on matters relevant to the condition assessment of electrical assets.

Who Should Attend?

This course is designed for utility managers, testing, maintenance and industry engineers, technical staff and consultants involved with the operation, management, testing or purchase of high voltage electrical plant associated with the generation, transmission and distribution of electricity and other relevant industries. It will provide an understanding of the performance and testing techniques of insulation that is essential for the maintenance of HV equipment insulation.

The Venue

The course will be held at the Bayview Conference Centre adjacent to Monash University and the Centre for Electrical Power Engineering, Wellington Road, Clayton, Melbourne. Accommodation is available at the Bayview Conference Centre.

About the Speakers

- **Dr David M Allan**: Manager, Research and Development Services, Powerlink Queensland
- **Peter Austin**: Specialist Engineer, GPU PowerNet
- **Ken Barber**: General Manager, Development & Engineering, Olex Cables
- **Prof. Trevor Blackburn**: Department of Electrical Power Engineering, University of NSW
- **Mark Cotton**: Senior Engineer, GPU PowerNet
- **Dr. Valery Davydov**: Department of Electrical & Computer Systems Engineering, Monash University
- **Prof. Robert Fleming**: Department of Physics, Monash University
- **Karl Haubner**: Testing Engineer Western Power
- **Prof. Bruce Kuhnull**: Department of Mechanical Engineering, Monash University
- **Dr. Tapan Saha**: Senior Lecturer, University of Queensland
- **Dr. Qi Su**: Senior Lecturer and Head, HVICM Group, Department of Electrical & Computer Systems Engineering, Monash University
- **Lyndsay Watt**: Senior Engineer, Hydro-Electric Corporation, Tasmania
Training Investment

The course investment provides for an inclusive industry related training package with comprehensive course notes, laboratories, lunches, morning and afternoon tea. Course fees are as follows: ESAA members: $1350, Associate Members: $1450, Non Members: $1600.

Course Outline

The course is conducted over three days commencing Monday 26 June 2000 and is a combination of lectures, tutorials, computer laboratories and practical exercises:

**DAY 1**
- Reliability Centred Maintenance.
- Physics of ageing polymers.
- SF6 gas insulation systems and insulation condition monitoring.
- EPRI project and transformer performance under overload conditions.
- Transformer maintenance and condition monitoring.
- Transformer ageing and ageing detection.

**DAY 2**
- New Techniques for condition monitoring of motors and generators - electrical.
- Insulation condition monitoring experience at Western Power.
- Condition monitoring of rotating machines - mechanical.
- Commercial and R & D products for ICM and RCM demonstrations.
- Laboratory No.1 - Partial discharge measurement using a computer based detector GDD-3.
- Laboratory No.2 - DGA analysis using fuzzy logic diagnostic tools.
- Laboratory No.3 - PD detection using a combined electrical and acoustic system.

**DAY 3**
- On-line condition monitoring techniques in GPU Powernet.
- Condition monitoring in the management of hydro generation assets.
- World technology in power cable development and condition monitoring.
- Condition monitoring and life assessment of aged transmission/sub-transmission plant.
- Discussion and conclusion.

Accommodation

Arrangements for accommodation are the responsibility of participants and costs are not included in the course fees. Accommodation is available at the venue. Please contact the Bayview Conference Centre on telephone +61 3 9544 5132 (a special rate has been negotiated).

Enquiries

**Registration enquiries**: Please contact Maria Habib at ESAA’s Sydney office, Tel: +61 2 9233 7222, Fax: +61 2 9233 7244 or email: habib@esaa.com.au

**Course enquiries**: Please contact Frank Zammit on Ph: +61 2 4271 2306, or 0412 013 738, fax +61 2 4271 2325, or email: zammit@esaa.com.au

Course details are also available on ESAA’s web page: www.esaa.com.au

ESAA actively supports the continuing education requirements of electricity businesses through its Professional Development Short Course Programs. Whilst the program strives to reflect business needs there is, however no guarantee that economic participation levels will be achieved. This program may be changed at any time due to unforeseen circumstances. If the course cannot proceed for any reason, neither ESAA nor CEPE will accept liability of whatsoever kind for expenses incurred by any person or corporation with the sole exception of the course investment, which will be refunded in full.
Registration Form

Yes! Please enrol me in the three day ESAA Short Course “Insulation Condition Monitoring and Reliability of Electrical Plant” to be held at Monash University in Melbourne, Australia from the 26-28 June 2000.

Surname ...........................................  Given Name ...........................................
Job title .................................................................
Organisation ..............................................................
Mailing Address ..............................................................
State ............................  Postcode ..........................  Country ...........................................
Special Area of interest ..............................................................
Contact Telephone ..............................................................  Contact Fax ..............................................................
Mobile .................................................................  Email .................................................................

Please find enclosed a cheque for AUD$ ........ payable to ESAA Limited.

Note: Please register before 16 June 2000

Please complete and return this form to ESAA Limited, PO Box A2492, Sydney South NSW 1235, Australia or fax to Maria Habib on +61 2 9233 7244.

Expression of Interest in proposed short courses for 2000 (refer over page)

Please record my interest in the following proposed short courses and provide me with further course information as it becomes available:

Course: ........................................................................................................
Course: ........................................................................................................
Course: ........................................................................................................
Course: ........................................................................................................

I am also interested in a short course which can provide me with more information on:

Your course topic ........................................................................................................

I would be interested in receiving an ESAA information package explaining Associate or Individual membership options and other services available from ESAA:  yes  no
About ESAA

The Electricity Supply Association of Australia Limited is the peak national industry association representing businesses, both public and private, involved in the generation, transmission, distribution and retailing of electricity. Its mission is to represent the interests of electricity businesses operating in an open energy market. Services to members are provided through the activities of the Secretariat the directorates and task forces established by the ESAA Board.

The Professional Development Short Course Program is an ESAA service conducted in association with relevant bodies including Australian universities and the electricity supply industry to provide industry specific, and specialist education for managers, professionals and technical specialists involved with the generation, transmission, distribution and retailing of electrical energy.

Proposed calendar of events: ESAA Short Courses 2000

- **June 14-16**: Electrical Safety with Energex in Brisbane
- **June 20-22**: Consulting Engineering and Management in Melbourne
- **June 26-28**: Insulation Condition Monitoring and Reliability of Electrical Plant with Monash University in Melbourne
- **June 28-30**: Grid Connected Energy Systems with ACRE in Melbourne
- **July 11-13**: Power System Protection with PAWA in Alice Springs
- **July 18-19**: Total Asset Management with ETSA Utilities in Adelaide
- **July 25-27**: Risk Management for Power Assets with Integral Energy in Sydney

For Short Course enquiries please telephone: Frank Zammit ESAA Short Course Program Manager on: Tel: +61 2 9233 7222 or Fax your request to: +61 2 9233 7244 or Email: zammit@esaa.com.au

You can also obtain further details on the internet at: http://www.esaa.com.au

Sponsors of Insulation Condition Monitoring and Reliability of Electrical Plant

ESAA Offices

<table>
<thead>
<tr>
<th>Secretariat</th>
<th>Melbourne Office</th>
<th>Canberra Office</th>
<th>EMF Advisory Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 11</td>
<td>Level 11</td>
<td>Suite 2, Level 6</td>
<td>Level 11</td>
</tr>
<tr>
<td>74 Castlereagh Street</td>
<td>459 Little Collins Street</td>
<td>QBE Building</td>
<td>459 Little Collins Street</td>
</tr>
<tr>
<td>Sydney NSW 2000</td>
<td>Telephone +61 3 9670 0188</td>
<td>33 Ainslie Avenue</td>
<td>Melbourne Vic 3000</td>
</tr>
<tr>
<td>Facsimile +61 2 9253 7244</td>
<td>Facsimile +61 3 9670 1069</td>
<td>Canberra ACT 2600</td>
<td>Telephone +61 3 9670 1017</td>
</tr>
<tr>
<td>Postal Address</td>
<td>Postal Address</td>
<td>Telephone +61 3 9670 9578</td>
<td>Facsimile +61 3 9670 1105</td>
</tr>
<tr>
<td>PO Box A2492</td>
<td>GPO Box 1823Q</td>
<td>Postal Address</td>
<td>GPO Box 1823Q</td>
</tr>
<tr>
<td>Sydney South NSW 1235</td>
<td>Melbourne Vic 3001</td>
<td>PO Box 925</td>
<td>Melbourne Vic 3001</td>
</tr>
</tbody>
</table>