

***Application Guide for TRV for High-Voltage Circuit Breakers***

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**Agenda of meeting in Myrtle Beach, April 26<sup>th</sup> 2010**

- ▶ Introduction of Members & Guests**
- ▶ IEEE SA Bylaws on Patents**
- ▶ Information on PAR and CIGRE**
- ▶ Drafts produced since the last meeting**
- ▶ Input by WG members**
- ▶ Draft 5b of PC37.011-201x**
- ▶ Next steps**

**Denis Dufournet**

## ▶ PAR approval

On 9 Dec 2009 the IEEE-SA Standards Board approved the project PC37.011 until 31 Dec 2013.

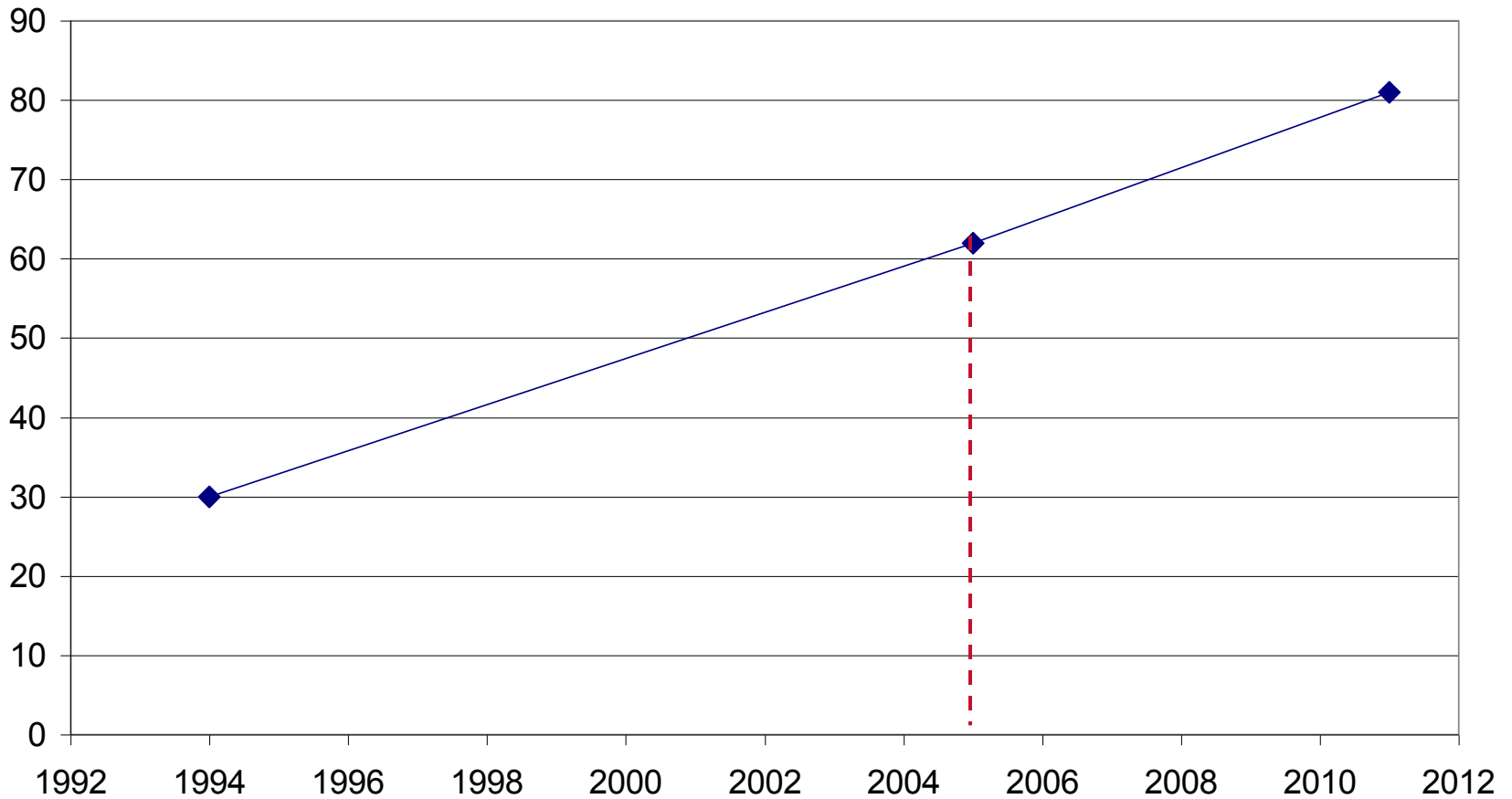
## ▶ CIGRE

- ◆ **CIGRE Technical Brochure 408 "Line fault phenomena and their implications for 3-phase short- and long-line fault clearing" was published in February 2010.**

# Drafts Produced Since Last Meeting

Date	Draft N°	Changes
May 2009	1	<ul style="list-style-type: none"> <li>- add the presentation of classes S1 and S2 for circuit breakers with rated maximum voltages less than 100kV;</li> <li>- add an example in 4.2.2 to show the calculation of TRV characteristics for short-line-fault;</li> <li>- revision of section 4.2.4 on line faults that is expanded and updated, using mainly the work done by CIGRE WG A3-19.</li> <li>- expansion of 4.4.2 on reactor limited faults</li> </ul>
June 2009	2 - 2a - 2b - 2c	<ul style="list-style-type: none"> <li>- revision of 4.2.1 on three-phase terminal fault</li> <li>- corrections in 4.2.4.1 and 4.2.4.2 (<math>e_{L1}</math> and <math>e_{L3}</math>)</li> <li>- improvement of Figure 20</li> <li>- renumbering of equations</li> </ul>
July 2009	3	<ul style="list-style-type: none"> <li>- extensive editorial corrections, following comments from Anne Bosma, including modifications of Figures 18, 19, 25 and A.3</li> </ul>
August 2009	4 - 4a	<ul style="list-style-type: none"> <li>- expansion of 4.4.2 on reactor limited faults with a new example of CLR fault interruption by a 38 kV circuit breaker</li> </ul>
September 2009	4b - 4c	<ul style="list-style-type: none"> <li>- extensive editorial changes following comments made by Ted Olsen, including modifications of Figures 9, 17, 22 and 25</li> <li>- changes made on draft 4c during the meeting in Denver</li> </ul>
October 2009	5 - 5a	<ul style="list-style-type: none"> <li>- revision of 4.4.2 on reactor limited faults (new Figure 32 and example of calculation)</li> </ul>
December 2009	5b	<ul style="list-style-type: none"> <li>- improvement of 4.2.4.6 (effect of mutual inductance on the d-factor), with reference to [B7]</li> </ul>

### IEEE C37.011 - Number of pages



## ▶ **Joanne Hu**

- ◆ Measurement of Transformer Surge Capacitance

## ▶ **Yasin Musa**

- ◆ SFRA (Sweep Frequency Response Analysis) tests of 765kV transformers

## ▶ **Denis Dufournet**

- ◆ Revision on 4.4.2 on series reactor faults
  - Improvement of Figures
  - Optimization of added capacitance to reduce the RRRV
  - Hand calculation of TRVs with added capacitors
- ◆ Improvement of 4.2.4.6: effect of mutual inductance on “d” factor

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- ▶ **Draft 05b PC37.011-201x**
  
- ▶ **Next steps**
  - ◆ First ballot before fall meeting 2010.

**▶ Thanks for your participation !**