



COMITE DES
TRAVAUX
SOUS TENSION

Live Working Training Organisation in France

Introduction

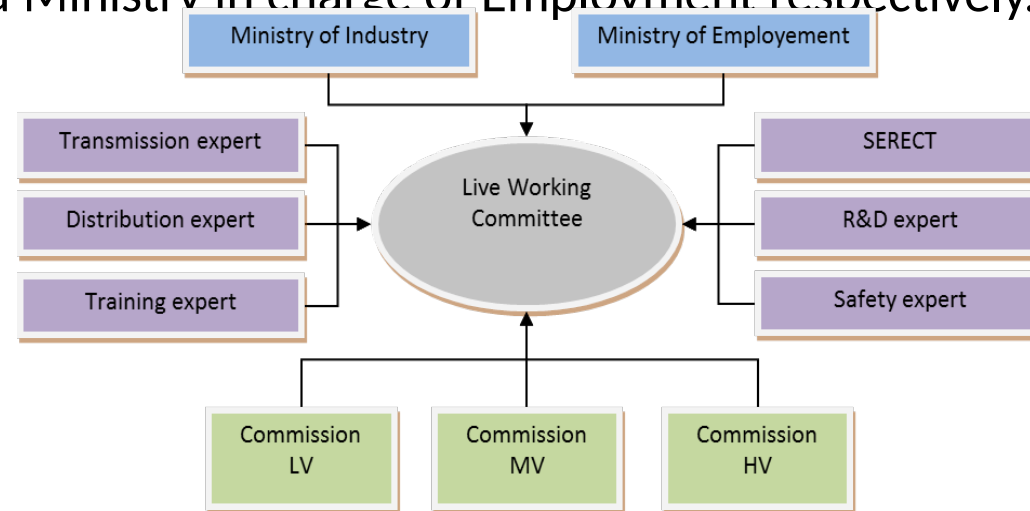
- As more than 30,000 people practice live working on Low Voltage distributions networks, in order to ensure high health and safety standards, it is essential that training is organised and controlled.
 - 20 companies offer live working training in France, in 54 different places.
 - 19 different types of trainings have been defined from starter training to retraining.
 - 10,000 operators take training courses every year.
- To ensure a high quality of education, the Live Working Committee has defined a specific protocol to certify training companies with the use of information seminars, annual reports, audits...

French Live Working Committee

- In the end of the fifties, French distribution and transmission companies decided to find solutions to reduce grid down time. After several techniques used in the USA, in Sweden and in the USSR were assessed, live working methods were considered of great interest. Then French distribution and transmission companies decided to define a specific organisation in relation with French Authorities: the "COMITE DES TRAVAUX SOUS TENSION" (French Live Working Committee).

French Live Working Committee

- The Committee is currently made up of 16 members, two are representatives from the Ministry in charge of Industry and Ministry in charge of Employment respectively.



- The other Committee membership are live working company executives and experts from the areas of health and safety, training and research.
- The Committee relies on three Commissions, one for each voltage level (LV, HV-A, HV-B). Commission member are grid operators and experts in the areas of health and safety, training, research and investigation.

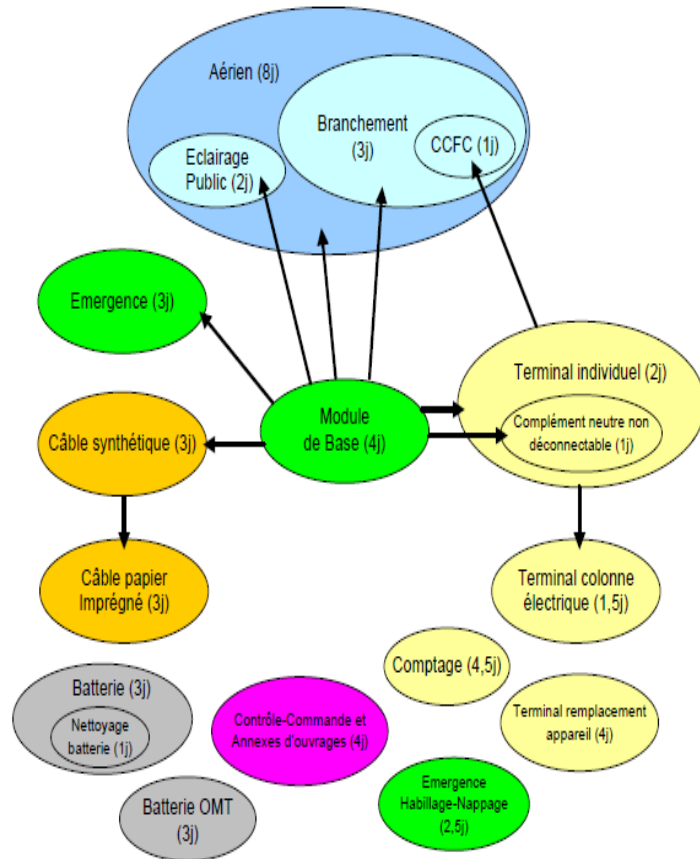
French Live Working Committee

- The main activities of the Live Working Committee concern :
 - Approving of the Working Conditions
 - Approving equipment for live working and corresponding Data sheets,
 - Certifying of training centres,
 - Approving training programs.
- In addition, the Committee contributes in guaranteeing the practice of live working by
 - approving the operational bodies for the periodic control of equipment;
 - approving employer recommendations,
 - communication (www.comite-tst.fr)
 - and accident analyses.

Regulation for Training Centres

- In order to be certified for live working training, training centres have to fulfil several conditions:
 - Training lessons have to respect live working training programs,
 - Training centres have to pass periodic audits carried out by live working inspectors,
 - Each year, a review is done of all centres,
 - And a global review is done at the end of the certification period.
- For all the training centres, the certification period is four years, and the last one has started in 2014 and will finish in 2017.

Training Program

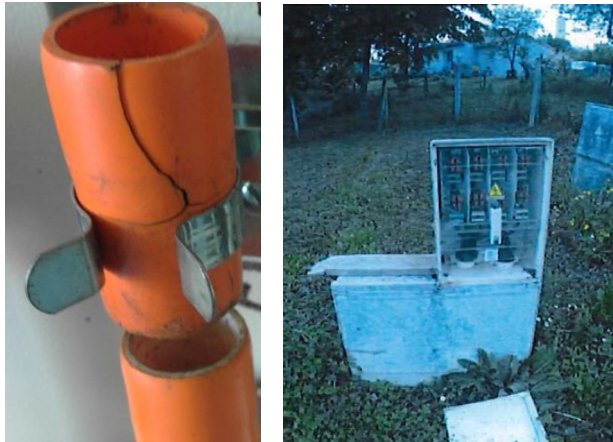


- Each Commission (LW, HV-A and HV-B) has defined types of training for each kind of live working operations. Each formation has two versions: initial training and retraining (to do every three years).
- Each training module is defined by the Commission, in a specification which details:
 - the general purpose of the training,
 - the activities which can be done after the training,
 - the prerequisites needed for the training session,
 - the different knowledge presented in the training session,
 - the training program
 - the exam at the end of the training session,

Training Program

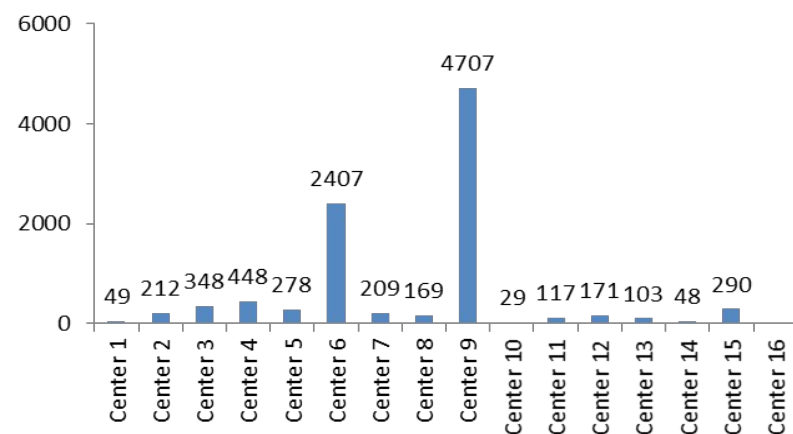
- For each training module, the following chart presents the activities concerned (framed in red) compared to all activities which can be done on the grid.
- A schedule is defined for all days of the training module, with theoretical activities and hands-on activities. Practical activities are key to ensure proper operator know-how, so training centres are required to have a workshop facility.

Audits



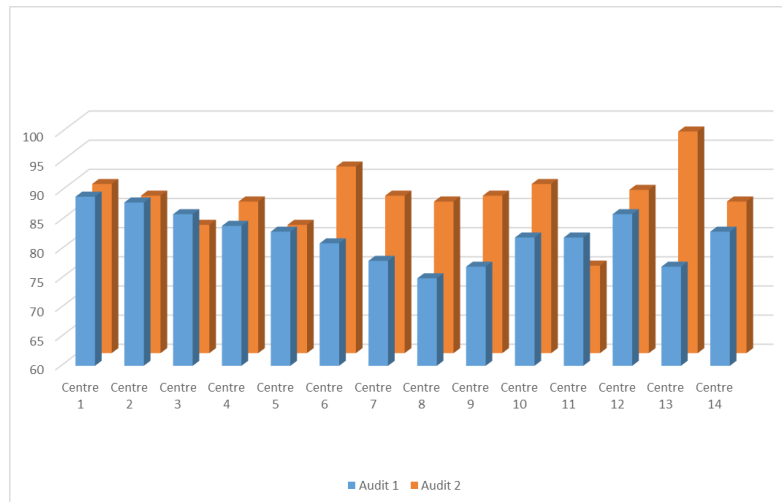
- Audits has to be done during the certification period. The live working Committee mandates an expert for that.
- Audit verifications deal with:
 - Conformity of the training activities : The different types of training given by the centre shall comply with the scope of the certification
 - Roles and responsibilities : Training centre executives shall verify that all instructors respect the same rules and verify frequently the installation.
 - Trainer knowledge : Periodic assessments of the trainers shall be done. It is also important that trainers give enough training sessions each year.
 - Equipment : The strength of this training is based on the achievement of practical works. Centres shall keep workshops in good condition. A clean workshop and tools in good condition are needed for trainees' safety.
 - Assessment of training : Regular difficulty concerns PPE that trainees shall bring for the training. Fortunately, warnings and regular reminders from the LW Committee have had positive effects.

Annual review



- Once a year, training centres have to send various information to the Live Working Committee:
 - Different evolutions of the centre: new staff, new organization...
 - Communication actions for trainers: meetings, information reviews, internal audits,
 - Scheduling of trainers : centres have to verify that the number of days teaching of each trainer is more than 20,
 - List of audits done (from SERECT, TSO or DSO...),
 - List of action plan,
 - Field experience of trainees: basic knowledge; employees' information, difficulties met...
 - Number of training sessions, number of trainees...
- With this information, Live Working Committee can follow several indicators:
 - Number of trainings: 10,000 with 58 % for initial training and 42 % for retraining,
 - Breakdown of different sessions for initial training,
 - Breakdown of different sessions for recycling training,
 - Repartition of trainees.

Global review



- During the last four years, audits have shown that global quality is increasing. Unfortunately some centres regress.
- Main difficulties observed are as follows:
 - Executive staff involvement is perfectible;
 - Improvement loop of the training centre is not always active ;
 - Workshop upkeep is insufficient ;
 - Some parts of theoretical training are not validated by hands-on exercises;
 - Compliance of the quality of training with requirements of Live Working Committee is not ensured;
 - Control and monitoring of Live Working tools are not sufficient;
 - Some trainees have poor basic knowledge (Work at height, reading and writing capacities, wear of PPE ...).

Conclusion

- The organisation defined by the Live Working Committee has been improved and quality of training in France has improve from 2013 to 2017.
 - Training courses defined by the “Live Working Committee” meets the needs of operators.
 - Communication by the “Live Working Committee” uses a new web site (www.comite-tst.com) with more detailed information.
- Some other factor has also help to improve safety of operator
 - Grid operators are more vigilant on supplier experience.
 - The new version of the French regulation C-18 510 has been recently released and it reminds to employers the importance of safety in the electricity industry
- As result, accident in live working operation has decrease in the last three years. The organisation defined by the Live Working Committee has had a positive effect.



COMITE DES
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Thank You