भारत सरकार GOVERNMENT OF INDIA
रेल मंत्रालय MINISTRY OF RAILWAYS
(रेलवे बोर्ड RAILWAY BOARD)

No. 2010/Elect(TRS)/138/2 **New Delhi, dated 02.08.2010**

General Manager,

Central Railway, Mumbai
East Central Railway, Hajipur
Northern Railway, New Delhi
North Eastern Railway, Gorakhpur
North Western Railway, Jaipur
South Central Railway, Secunderabad
South East Central Railway, Bilaspur
Western Railway, Mumbai
CORE, Allahabad
Chittaranjan Locomotive Works – Chittaranjan
Diesel Locomotive Works, Varanasi
Rail Coach Factory, Kapurthala
Metro Railway, Kolkata
Integral Coach Factory, Perambur, Chennai
Rail Wheel Factory, Yelahanka, Bangalore
Diesel Modernization Works, Patiala

Eastern Railway, Kolkata
East Coast Railway, Bhubaneswar
North Central Railway, Allahabad
North East Frontier Railway, Guwahati
Southern Railway, Chennai
South Eastern Railway, Kolkata
South Western Railway, Hubli
West Central Railway, Jabalpur

Director General, RDSO, Lucknow
CAO/COFMOW, Tilak Bridge Railway Complex, New Delhi
Director General, Railway Staff College, Vadodara

Sub : Minutes of Chief Electrical Engineers' Conference.

Please find enclosed minutes of the Chief Electrical Engineers' conference held in Railway Board on 14th & 15th Jun`2010 for necessary action.

Feedback on implementations of the decisions taken may kindly be sent for perusal of Board (ML).

DA : as above.

Majhi

(N.Majhi)
Jt. Dir. Elect. (TRS)
Railway Board

Copy to :

Sr.EDSE/RDSO/LKO, EDTI/RDSO/LKO, ED(EMU/PS)/RDSO/LKO & Director/IRIEEN/NKRD.

EDEE(G), EDRE, EDEE(Dev.) and ED(EEM), Railway Board

Jul'10

Minutes of the Chief Electrical Engineers' Conference held in Railway Board, New Delhi on 14th & 15th Jun`2010

Address by:

Advisor Elect (RS)

- Welcomed Member (Engg), Member(Elect), Member(Mech), Additional Member (Budget), Additional Member (Elect), Secretary, Chief Electrical Engineers from Zonal Railways / Production Units, Sr. EDSE/RDSO and other senior officers in the conference.
- Complemented all the CEEs and team of their officers / staff for achieving targets set in the last CEEs Conference where a number of major policy issues were discussed and strategy drawn out, due to which, the IR has been able to achieve the freight loading target of 888 MT during 2009-10 apart from making other significant improvement in the area of passenger travel and other services provided to the public.
- Presently, electric traction on Indian Railways contribute to carry nearly 65% of freight and 52% of passenger traffic. The task ahead is further challenging as IR is expected to grow at the rate about 9% per annum during the coming years where the Electrical department has to play a very important and responsible role.
- Ministry of Railway has issued Vision 2020 document in which IR's objectives and targets planned to be achieved in various disciplines by 2020 have been defined. This meeting has been called basically to discuss these targets and to prepare action plan along with time frame for implementation.
- During last year, punctuality on account of electric locomotives and other electrical assets has deteriorated. Electric locos based in certain sheds particularly in Mughalsarai, Kanpur, Ghaziabad, Baroda, Roypuram, Lalaguda and Howrah require more attention. Advised CEEs to monitor the maintenance practices in the electric loco sheds more closely so that the standards prescribed for maintenance of assets are strictly followed. Punctuality performance of Electrical assets on Railways NCR, ECR, SR and ECoR needs to be monitored more closely.
- The progress of works sanctioned for CLW for capacity augmentation during the last three years have been progressing very slowely. Their expeditious completion is necessary for enhancing production of 3-phase locos. These works need to be monitored closely. Also the production of WAP5 locomotive is required to be stepped up at CLW immediately.
- This year during foggy weather there have been cases of rear end collision on electrified sections involving disobedience of loco pilots in adhering to GR 9.02. Zonal Railways should plan and prepare fully before arrival of the next foggy season to ensure smooth operation and the contingency plan should be available in advance to ensure safety of the trains.

- Advised CEEs to monitor the maintenance practices on the electric loco side more closely so that the standard practices which have been set for maintenance assets are strictly followed.
- In last, he advised CEEs to prepare action plan and discuss all issues threadbare so that IR is able to meet the targets.

Additional Member (Electrical)

- Failures of electrical assets are under control and our contribution in meeting the targets of freight loading are significant.
- For analysis of AC coaches failures, devices like CIP, ERRU and Inverters are available with the Railways but Railways have no mechanism to download the data of the devices on the plea that they can not purchase a computer whereas it requires a simple data downloading device which can be palmtop or tabloid or any other simpler hand held devices.
- Whenever there is a passenger complaint, prompt corrective action should be taken and feedback advised to the complainant quickly.
- OHE protection scheme needs to be improved further.
- On-board intelligent devices are available on loco and AC/DC EMUs, regular analysis of the output is essential.
- PCB Card repairing should be planned and expedited.
- Work on new areas like adoption of regenerating braking in conventional locomotives/EMUs, projects for carrying perishables in temperature control conditions should be expedited.

Additional Member (Budget)

- Last year actual total earning (including misc.) was Rs. 89229 Cr. Total working expenditure which includes revenue expenses, demand 3 to 13, appropriation to Depreciation Reserve Fund, appropriation to Pension Fund was Rs. 82915 Cr. and an additional Misc. expenditure of Rs. 500 Cr. One of the great achievements last year was that we did not have to defer payment of dividend.
- Projections for the current year earning (including miscellaneous earning) is about Rs. 97721 Cr. Projection for the current year expenditure is Rs. 87100Cr.
- In 2009-10 the dividend paid was Rs. 5543 Cr. Current year we have to pay Rs. 6608 Cr. After paying dividend we hope to have a surplus of Rs. 3173 Cr. which will be utilized on Development Fund and Capital Fund.
- As far as funds are concerned we are in desperate situation. Last year around Jan'09 cut in the plan head expenditure was imposed that was just unavoidable because earnings had not materialized and expenditure was just ballooning. Cut had been made on those plan heads which spend money from DRF and DF.

- This year there is no money in Capital Fund. DRF and DF is also under pressure. Last year we had a significant fund balance which was the leftover of the previous years. This year the fund balance is almost nil. Whatever we appropriate for DRF and DF will have to come from our surplus only. The surplus position expected is Rs. 3173 but for appropriating Rs. 7600 Cr. to DRF it is not sufficient.
- So far up to the month of May'10 our earnings have not been as budgeted, resulting in reduction of surplus further. There is likely cut in plan head expenditure on Electrification projects and Other Works.
- On electrification projects, allotment in the year is very less but there is no option because an amount of Rs. 2119 Cr. has been earmarked for DFC and RVNL projects. Unlike last year, we have spent Rs. 600 cr. in Metro projects this year and so Railway Electrification has got a cut.
- Earnings are not coming up and therefore we are forced to make a cut of about 10%. However, we should not be very pessimistic, earnings may pick up.
- The proposals specially for the RE projects at the time of sanction in abstract estimates are based on very old figures as a result wide variation takes place in detailed estimate framed by CORE. This must be addressed.
- There is also fare amount of delay in execution of projects. Some times it is on account of funds and some times because of other factors like material modifications etc. which are thought of late.
- Solar / Non-conventional energy is very important. In this Budget we have two wind energy works sanctioned, one is through PPP. Timely implementation of these solar energy works should be ensured. This is one of our missions in Vision 2020. Even if 10% of our energy needs come from alternate sources, it would make a difference.

Secretary / Railway Board

- From year 2008-09 onwards, all the Annual Confidential Reports have been uploaded on the website and one is able to view his confidential reports which has now been renamed as Annual Performance Appraisal Reports (APARs).
- There are lots of representations which we are receiving from officers from various levels. Special attention has to be given by all the officers while writing APARs as it is now in public domain. The role of reporting authority, the reviewing authority and the accepting authority is to ensure that it does not suffer from inherent conditions or informalities because whatever written is subject to check.
- Inform your officers that whatever they write in APARs, reason has to be recorded very clearly and there should not be any ambiguity. If you want to give an adverse entry, please try to build up case file from the very beginning instead of giving the adverse entry at the end of the year.
- Nature of ACR has changed and it is now a performance appraisal, so the entire year performance is to be taken into account. Those have to be measured critical if you give an adverse entry.

- Now with RTI and people approaching the courts their APARs are being subjected to very serious contentions.

Member (Mechanical)

- Shared AM(B) concerns regarding crisis on financial fronts. Future appears equally worse unless some corrective actions are taken and brakes are applied in the way we smoke investments / funds.
- Sanctions that are in the process of execution. Undue competitiveness in the soliciting investments is something which needs to be curbed. For example, we have been buying technology which should enable us to improve maintenance, increase outages, and give lesser burden on the maintenance. While we talk of improved maintenance facility but we stick with old yardstick and proliferation of the loco sheds all across the country. Even a cursory re-look in this aspect would yield vast economy.
- It is becoming increasingly difficult to have coaching depots in the metro cities because of space constraints. With advancement in equipment technology, updation of maintenance technology is also required to optimize space utilization of the existing infrastructure and therefore there is need to completely switch over to LHB coaches as this would enable increased maintenance infrastructure which may be 4500 KMs on a very conservative estimate. As Railwaymen, we must plan investment for growth with least investment on acquisition of land.
- There is a lot of scope of improvement in reliability of assets which have safety implication as well. So where safety has to be drastically enhanced, acquisition of new systems may be considered.
- Procurement procedure on IR are not well established. We are not recognizing the worth or the wisdom of sticking with the OEM and falling prey to the logic that OEM are not competitive. This argument advanced by those vested interest who want second 'B' graded product slightly cheaper than the OEMs. A very competitive rates can be obtained from the OEMs if we offer long term commitments.
- Our specifications are generally not enough to fully capture or define product that we wish to purchase. It is neither possible to define technology or the culture of manufacture which make a lot of difference in quality of out put as well as life obtained.
- Energy is one of the area where vital role for its conservation can be played. Empty wagon movement has been brought down by at least 30% in the past two years. Similarly more areas can be identified and worked upon.

Member (Engineering)

- On electrified sections, there has been issue regarding the working of ballast screening machine as difficulties are faced because of lesser clearance between track and OHE. PWIs have been instructed to be watchful on such locations. The problem is more serious in the yards than the mid section due to points and crossings, Civil Engineering department may be involved to resolve the issue, if any.

- Corrosion of the rail in AC section on account of the return current is a cause of concern. This has led to certain fractures. Engineers have to figure out the factors that are contributing the corrosion including AC return current. Once factors and locations are identified, issues can be addressed.
- While preparing Works Programme 2011-12, Zonal Railways should keep the status of the expected fund arising in outgoing works in mind and review need for merger/deletion etc.
- There may be a necessity for freezing a lot of works from all disciplines. It would be a very good idea if suggestion for freezing of the works comes from Railways in the order of priority. New works to be proposed should have proper justification.
- Assets utilization and optimization should be addressed from the financial point of view that an asset created must get used. Use of certain assets like electrification of line gets held up on account of CRS sanction for non creation of adequate posts. The issue has been discussed in a Board meeting and hopefully will find a solution sooner than later.
- While IR is planning to man 4000 level crossings, the issue of security of gate man needs to be resolved particularly in Maoist area where gate man are virtually absent in night. Making boom work on electricity from inside the gate man cabin instead of a winch outside may be considered at least for electrified territories. The cabin which could be locked from inside be provided with toughened glass windows for gate man to view outside.
- DFC projects are planned to offload the freight traffic from quadrilateral lines with the intention to raise the speeds upto 160 kmph on quadrilateral which require extra cushioning of the track. So clearances of the roofs, particularly for Garib Rath trains, needs to be re-worked.

Advisor / MR

- The word procurement has got much larger commutations than it is considered in the Railways because it tend to three basic things of procurement i.e purchase of good quality of stores, award of works contract and services like consultancy contract. These three things come under the same category called procurement.
- There is certain basic difference between concept of public procurement and non-public procurement.
- Negotiation is strictly banned by the CVC and the Rule book of the Railway says that negotiation is an exception. Negotiation is never conceived in the public procurement as a cost cutting tool.

- On Central government procurement does not have something like a common procurement law. All of the government procurements basically guided by a government order i.e. General Financial Rules (GFR) which was last modified in 2005. In 2006 the Finance Ministry brought out three manuals one for goods, second for works and third for consultancy services. The public procurement has to be made at a reasonable price not on lowest possible price. Being a public procurement officer, one is suppose to confirm three norms of public procurement i.e. transparency, equity and fare plea. There are two other points in support, one is the GFR, other is the various guidelines which have been issued by the CVC from time to time.
- Railway procedures are not strictly speaking Government orders these are internal procedures issued by the concerned departments.
- As CEE, you are involved in the procurement process as a technical member of the tender committee for goods or as a convener of a Works tender.
- The procurement in the Government department anywhere which follows the tendering system must be based on a very solid invaluable documentary procedure / system. The first major document what comes in picture what you called the tender document in the outside world it is call Standard Bidding Document (SBD). The design of the Standard Bidding Document has to be done very carefully.
- The Bidding document is basically sub divided in two parts, first is the tender bidding document which will be universal it will apply to whatever you are buying or procuring and in the document there will be enough conditions known as special bidding conditions which will depend upon the particular type of work you are procuring or the goods you are buying. It will vary from commodity to commodity so that it will be the variable part of the document. The variable part or the special tender conditions shall have to be designed in a very careful manner.
- The eligibility criteria, evaluation criteria and the delivery schedule should be very clearly drawn. And if you are having procurement of goods having price variation, the PVC should also be designed carefully.
- You should go by the H1 concept for if you are selling something like scraps etc., otherwise the concept of L1 when you are procuring something. In Railways, this L1 is the quoted L1 but you can have one of the concept what is called is the evaluated L1. The evaluated L1 and quoted L1 may not be necessarily the same on comparing the life cycle of the equipment, maintenance cost of the equipment etc.
- You are at liberty to design your eligibility criteria and give it in your tender document. The evaluation criteria modulation may be very relevant when you are dealing some specific job where your want to give stress on quality, we can do that.
- If you are the accepting authority or GM is the accepting authority or the case is required to come to Board, ensure that tender document has been designed, developed and formulated correctly.

- In the tender committee proceeding, when you are dealing with a tender, if any letter / representation comes from any of the tenderer complaining something, it must be disposed off through the forum of the tender committee.
- While dealing with tender committee proceedings please ensure that any clarification given by any tenderer after the tender opening which affects / interfere ranking of the bids may not be entertained. Do not write, make any correspondence or write any letter to the tenderer after tender opening which may have some type of impact.
- One must not go for Negotiation is something CVC has been advocating to the buyer of all the departments. They say that the negotiation is one source of the corruption. Counter offer is an offer which is given to a tenderer against the offer submitted by him for the tender. The counter offering is a technique provided to you to make an attempt that you are dividing the goods or the contract quantity in two bidders and trying to place the contract at uniform rate of the lowest bidder. It very clear that counter offer is not mandatory. Be careful, when you make counter offer as if the counter offer is rejected by the tenderer, the tender will have to be discharged.

Member Staff

- As far as the Human Resource Department is concerned, there are the two important aspects- the training and the availability of manpower.
- There are several vacancies, after sixth pay commission which are now being filled up. After 31.08.09, Board have issued instructions advising procedures, revised benchmarks to fill up those vacancies. Most of those vacancies can be filled up quickly because the procedure has been simplified, instead of written examination selection, now many of the vacancies of supervisory grade can be filled up simply through seniority cum suitability.
- Regarding recruitment, process was also held up for some time but now examinations have started. RRB examinations have started and artisan supervisors in electrical will also begin shortly in next two-three months. This manpower will available to Zonal Railways by Oct'-Nov 2010 latest.
- After that training will be required. Recently, examination held for ALPs for 14000 vacancies, we have to train them after joining. A special study has been done as to how the training will be conducted for that we have involved the General Managers. They must have advised you that what is to be done. Because we don't want that after selection the training should wait and you suffer because of non availability of the manpower.
- Simultaneously we have reviewed the course contents, the duration of the course of ALP which has been substantially rationalized. So the training requirement has gone down considerably. Both CEE and CPO have to sit together and see that right from the stage of selection and handing over of the panel by RRB, a plan is in place to train staff.

- We will have to enhance the capacity of training institutes by unconventional means may be 2-3 times. That measures, you have to take right from now, because the supervisors, the officers you need for training institutes will have to be inducted. That is why a planning is required in advance and similar thing will be required for the artisans, supervisors.
- It is necessary that as soon as the RRB panel comes you send them for training. If you don't have by any chance any capacity after taking all the measures, then you explore the adjacent Railways. So whatever measures you can take, please take and see that the people do not wait for training.
- The curriculum also has been changed and it has been made more effective and more practical. That also you should monitor in the training school.
- Some additional training institutes have been suggested in agenda, you make out a proposal. I think it can be implemented at the GMs level or proposal can be send to Board , if required
- For group D you may have to wait a little more because some decisions are yet to be taken but I am sure that those would be taken soon. Some Railways have not inducted even apprentices. This should be expedited and whatever apprentices are there, they should not left.
- To overcome the issue of manpower, you can propose some retired persons, wherever you find available and wherever Boards assistance is required in engaging them.
- About creation of posts, many of the Zonal Railways are able to find the matching surrender but some do not have matching surrender available. If it is absolutely essential, send the proposal, convince the Board that you don't have any matching surrender available neither in the total vacancy bank nor in your own department. The proposal would be considered then.
- The best way is to rationalize your own department's manpower and see that it is made available within your own department.
- The manpower needs to be made ready for the technological inputs which are coming up in assets. You should have knowledge of technical knowledge available in the training institutes. Because unless that happens , it will be very difficult for you to absorb the technology.

Member (Electrical)

- ML thanked all the Board (Members), other senior officers in Board and ex. AM/RS for sharing their broader concerns about the future requirements where the participation and contribution from electrical engineering fraternity is required to help meeting the corporate objectives. The agenda of the conference aiming on improving asset utilization and reliability standards and reduction in expenditure on maintenance without sacrificing quality.
- Congratulated Electrical Engineers for coordinating in achievement of 888 MT freight loading, 1117 km of electrification resulted in saving in the costs.

- As far as electrification proposals are concerned, these should be proposed considering actual expenditure expected and the likely savings which can justify the use of the traction. Estimates should be prepared on the basis of the current estimates or the current rates of CORE. There is no point in justifying in ROR by just suppressing the actual cost. This really does not help. If a project is not viable then it should not be pushed. The requirements of Indian Railways are quite large and there is no need to look at unviable projects.
- Once the capital investment is done, we should not keep the asset un-utilized.
- The power tariff has not gone up after year 2003 and due to this Demand-10 expenditure has been under control. Actions taken on Railways by which the SFC has come down very substantially would be very interesting for electrical fraternity also.
- Energy audits have brought out that over capacity transformers and generators is counter productive as by the time load would be realized, the asset would have lived its life. This tendency should be curbed. Railway should provide equipment only 10 to 20% more than the planned load. If there is any possibility of growth in load in future , a second set may be provided but there is no need to provide over capacity. Provision of over capacity transformer would not only be more expensive but also energy in-efficient when operated at a lower level. Parallel operations of transformers should also be considered in lieu of replacement of existing lower capacity transformers having residual life.
- Most of the energy consumption is in heating and cooling, pumps, flood lights etc. The recommendations of the auditors on these aspects to be put on a higher priority as compared to the lights they are the once we need to put in on a higher priority as compared to the lights. Solar lights may be very effective in areas where artificial lights used through out the day like Railway Board, HQ offices.
- Use of heat reflecting paints can reduce the heat burden in the AC coaches and locos for improvement in cooling interiors as well as to save the energy.
- RDSO has to take quick decision both for loco and AC coaches to avail the benefits of hotel load as it become reality. It will require coordination both from the Carriage and Wagons and the locomotives both in electrical and Diesel but that has got at gross scope of fuel savings.
- There are areas where a lot of horizontal communication is taking place within cadres in the Railways and the vertical communication is getting blocked. During the course of such conferences and other fora on Railways, let the vertical communication be free, it will help in more consolidated planning.
- Zonal Railways have been advised to take the action on Vision 2020 plan. There are the strategies which have been outlined. It may not that all of which have to be done in one year but their annual programme must fall in line with Vision 2020. Zonal Railways should circulate it to other departments and take their view also, so that all departments work in unison.

- The training of the non- running staff is also becoming very much important particularly when we deal with AC coaches and the General services which require a lot of inputs.
- Technology should not be inducted for the sake of technology but it should be pursued either to save cost or to save time or to improve reliability and if those things are not to be realized, there is no point pursuing it.
- Those trials which are right now ongoing they have to be seen very carefully. We should have an intent behind the trial, a time schedule behind a trial. We should define method of monitoring and it should come to a conclusion quickly. There is a little point in extending a trial year after a year. Eventually the success of the product is justified just because it has been on trial for last five years. The trials should be evaluated very quickly.
- A lot of instructions have been issued regarding belts and pulleys of AC coaches. Intention is clear, instructions are there, circulars are there, and understanding at the level of Railway Board and probably CESE and CEE is there. However, below that there is no awareness. For that vertical communication must start to pass on information up to ground level.
- Many of the times OHE failures are accounted for bad weather. The electric traction was never meant as fair weather traction. Enough of work has been done by the RDSO in those areas which are thunder and lightening prone. Zonal Railways should take advantage of the study and improve the system.
- Somewhere in 1981-82 a decision was taken to disconnect all lightening arrestors simply because no method was available for finding out whether it was defective after having out lived its life. But today, such statement "OHE is tripping due to thunders and lightening" is not acceptable. Proper earthing, working of lightening arrestors and cleaning of insulators should be ensured.
- Panto entanglement during storm is a cause of concern because cantilevers are not being maintained properly and are not swiveling or because the pantograph is not being maintained. Railways which are prone to panto entanglement should ensure proper maintenance of OHE and pantograph. Maintenance of ATDs and cantilevers and insulators are the more important aspects.
- Trimming of trees should be ensured. In case of inability of Civil Engineering departments for what so ever constraints they have got, there may be an alternative in contracting out as one time.
- There are around five cases of fire on WAM-4 locos. They have been identified because the rubber components which seal of the transformer oil have not been probably maintained and they had perished, this is very elementary. Corrective action may be ensured in this regard.
- There is dis-satisfaction emanating amongst staff and complaints keep coming both from Group D to Group C, within Group C and Group C to Group B because of delayed promotions. These issues should be addressed in time.

- Since all the expertise for locomotive cab does not necessarily reside on us, IR may look for consultancy from some institute say National Institute for Design or Institute of Industrial Engineering to make locomotive and EMU cab , a little more ergonomic. Meters provided on locomotives can be smaller in size, can be incorporated in one and can be removed if not required. Presently 3.5 sq.mm cables are used behind the meters, these cable bunches make it work deftly. Panels with use of pre-harnessed proper cables can help make cabs better.
- Railways should ensure appearance of the locomotive, its cleanliness, condition of paint and washing including EMUs.
- Issues raised by passengers of Kolkata Metro regarding quality of announcement through PA system of should be addressed .
- In order to provide assistance to the driver particularly during the foggy season, particularly both for the Northern East and NCR region, there is need to provide / replace old type of number plates with retro-reflective number plates on OHE mast / telegraphic poles, to a plan that warns drivers of the approaching critical location.
- Directives on use of numeric relays already exist which are tremendous aids in finding out how far a fault lies. Every tripping of the circuit breaker of the feeder is an indication of fault. But if there are problems like that the relay readings need to be analyzed for forecasting and locating the areas of fault.

Chairman Railway Board

- Electric traction is going to be the medium of transportation for the civilization. It has tremendous haulage capacity. There can be no constraints in the programme of Electrification.
- The cost of operation increases when the fuel cost goes up. It also increases when the train is not allow to run at a proper speed and therefore, the mind set of limiting current to traction motors needs to be removed. Emphasized upon the working of all locos at their maximum speed and suggested that maximum current capacity along with duration should be specified for each class of locos and pasted in loco cabs. All the drivers should be trained to run on maximum permissible speed, utilizing the full capacity of the loco.
- The design of cabs should be standardized ergonomically and no Railway should be allowed to make even a minor change or tinker with it.
- Electric locos get damaged on account of cattle run overs very easily. It should be re-designed to prevent damage to cattle guard, hose pipe, angle cock, buffers etc. in front so that loco is not to be detached after a cattle run over takes place. This should be taken up as a challenge.

- It has been informed that problem is being faced in commissioning of RE projects which are completed due to shortage of manpower. Railways should examine the availability of staff as per requirement and try to commission the projects at the earliest with a goal that IR does not suffer.
- Railways are required to keep operation cost low which can be achieved by keeping the maintenance cost low. Every effort should be made towards this.
- In order to support economical growth of 9% and take India to superpower stardom, the type of locomotive can not be compromised because it is the future of IR to meet the higher targets of freight loading and passenger traffic ahead.

Discussion

Electric Locos:

- Railways Boards' instructions exist for timely communication of accidents/ unusual occurrences (letter no. 2002/Elect(TRS)/113/1, dated 05.03.02, reiterated on 12.11.07). It has been observed that Zonal Railways are not reporting such incidences of serious train accidents / derailments / OHE breakdown / fire in loco / coaching stock etc to Board in time causing a lot of embarrassment. Zonal Railways should look into the issue seriously and establish a perfect system of reporting in time.
- Since a single WAP5 loco will not be able to haul 24 coaches at 140 kmph or 20 coaches at 160/200 kmph, two WAP5 locos in MU will be required. In such a case, one pantograph of each loco would have to be kept raised for feeding power to either loco which may make the system susceptible to panto entanglements at higher speeds or alternatively power can be drawn from a single higher capacity pantograph and transferred to the other loco through power jumper cables. It was discussed that as a strategy, Locotrol system i.e. distributed power for electric locos can also be considered for development both for high speed as well as for the freight operation.

  It was finally decided to constitute a committee of SAG/ JAG officers, which shall study the subject and recommend strategy along with improvements required on long term basis in OHE including power supply augmentation. Accordingly, a five member Committee comprising of EDSE/RDSO (Convener), CELE/NR , Sr.DEE/TRS/GZB (since on board equipment of TPWS shall be looked after by the shed), CELE/CR, CELE/CLW and EDTI/RDSO was nominated to study and submit report within 3 months. The committee shall also recommend changes required in the layout of the locomotive for accommodation of hotel load as well TPWS, design of WAP5 cattle guard to withstand cattle run over at high speed etc.

CEE/CLW
CEE/CR
CEE/WR

- While DLW is manufacturing 250 diesel locos per annum, CLW has not been able to achieve an outturn beyond 220 locos per annum. The basic plus point with DLW is out sourcing of activities and assembly of locos at Parel Workshop. CLW should also follow suit and increase outsourcing its non-core labour intensive activities. Also the directions of Board issued vide letter no. 2009/Elect(TRS)/441/4 dated 21.06.2010 for initially assembling 2 nos. three phase locos at ELW / BSL and 5 nos. conventional locos at DHD workshops should be implemented by CLW, Central & Western Railways. Subsequently, it should be possible to increase out turn from these shops to 25 locos per year for 3 years to wipe out the backlog.

- CLW should step up its production of WAP5 locos as these are the only locos fit for 160 kmph operation. CLW should ensure production of 15 WAP-5 locos during 2010-11 and thereafter manufacture 25 WAP-5 locos per year.

CEE/WR

- The work of setting up of new POH workshop at Dabhoi is not progressing satisfactorily. Technical bids have been opened , but the commercial offers are yet to be opened. The work is targeted completion within 18 months . W.Rly was advised to submit bar chart / time lines for completion of various stages in the project and adhere to them.

CEE/WR

- Similarly for capacity augmentation of MTR at Dahod from 54 locos to 108 locos per annum , work has been sanctioned in Budget 2010-11. The cost of the work has been pruned down to Rs. 27 Cr. and the revised scope of work has been advised. WR was advised to make a time frame right from preparation of detailed estimate to the completion of the work and inform to Board.

CEE/SER

- The work sanctioned in 1996-97 for setting up of ELS/BKSC is not yet complete. SERly should expedite laying down a time bound programme.

CEE/CLW
Sr.EDSE/RDSO

- A work of setting up a new Center of excellence at CLW has been sanctioned at an anticipated cost of Rs. 42 Cr. in Budget 2010-11 with the intent that we should have facilities available for simulation and evaluation suspension of bogie traction system , laboratory for development and testing of software evaluation of power electronic application. Electric loco modeling, virtual modeling and simulation and laboratory for development and evaluation of electrical insulating materials. Since, such facilities of R&D are essentially required for expertise in different areas of Electrical department , the centre shall be planned and set up expeditiously. All the specification for different facilities shall be prepared by RDSO. The work shall be executed by CLW against the specification framed by RDSO. The technical evaluation shall be done by RDSO. The system will be made fully functional in CLW under GM / CLW with a SAG officer in-charge.

CEE/ECR
Sr.EDSE/RDSO

- CLW has turned out two IGBT based WAG9 locos which are based at ELS/GMO/ECR. The performance of these locos is still under observation. There is need to closely monitor their performance and whatever troubles/ shortcoming are noticed should get reported and rectified associating RDSO / CLW.

- Zonal Railways should work out strategies for the training of running staff as well as the maintenance staff. Review is required to see adequacy of training infrastructures available with Railways to cater to the need of high induction of staff in coming years arising out of higher induction of electric locos. Capacities may have to be augmented on existing training schools. New electric training centres may be required at Amritsar, Gorakhpur, Bangalore, Itarsi, Jodhpur , New Jalpaigudi and Vishakhapatnam. Zonal Railways should plan urgently and propose accordingly.

CEEs of all Z.Rlys

- An static three phase electric loco simulator has been got developed by SCRly and installed at ETC / BZA . RDSO was advised to expedite preparation of generalized specification so that Zonal Railways may plan acquisition for crew lobbies / electric training centres.

Sr.EDSE/RDSO

- The three phase electric loco training car being developed by CLW for ETC / CNB should be expedited.

CEE/CLW
CEE/NCR

- An Advance loco pilot training center at Kharagpur has been sanctioned in Budget 2010-11 which is being coordinated by Training Dte, Railway Board with the inputs to be given by the respective department. This would be common for Electric and Diesel running staff. SE Rly is advised to look into and take appropriate action.

CEE/SER

- During Suppl. Budget 2009-10, provision of 1000 nos. VCDs for electric locos has been sanctioned. NR, SCR and SER have been advised for undertaking centralized procurement for different Zonal Railways against latest specification issued by RDSO. This is a safety item and therefore procurement should be expedited for fitment of all these VCDs on electric locos by the end of Mar` 2011.

CEE/NR
CEE/SCR
CEE/SER

- A large nos. of Unit Exchange Spares are lying defective in sheds / Workshops. Zonal Railways should review the actual requirement and arrange to dispose off the excess ones and create useful space for working.

CEEs of all Z.Rlys

- The progress / status of the following ongoing projects was discussed

Sn	Project	Decisions/Status
1	Trials with Drivers` Vigilance & Telemetric Control System (DVTCS) equipment on electric locos.	SCRly to follow up with M/s. Neurocom, Russia for early supply. Delivery expected by 31st July 2010.
2	GPS based fog safe system developed as a technological aid to LPs for working in foggy weather when visibility is poor.	Limited trials have taken place on NRly. RDSO to study and frame specification for procurement by fog affected Railways. NR, NCR , ECR & WCR to procure 30 sets of fog safe system each for extended trials during coming winter season.
3	Trials with 2x500 kVA hotel load converter procured by CLW from M/s Siemens and being equipped on loco no. 30277 WAP7.	Loco expected to be turned out by end of June 2010. Trials to be undertaken with a new Shatabadi rake from RCF in July` 2010.

Sn	Project	Decisions/Status
4	Trials of TPWS on WAP7 locos based at ELS/GZB on New Delhi - Agra section in association with RDSO.	5 WAP7 locos have been equipped with TPWS and Driver`s brake interface to give driver an over-ride facility of braking. Issues regarding fail safety of the Driver`s interface supplied by FTIL to be confirmed by RDSO. Trials expected to begin in Jul` 10.
5	Trials with modified cooling radiators and Thermo Electric Cooling Modules (TECM) in 5 WAG-9 locos from oldest lot at ELS / GMO so that the impact of both the modifications can be assessed separately as well as together.	Target of this summers for trials could to be maintained due to delay in procurement on ECR. Requisitions are under vetting and the revised target of Dec'10 was given by ECR.
6	Development of 1000 LPM and 1750 LPM (at 1000 m altitude) Oil Free Compressors as per RDSO specs by CLW through developmental tenders for 18 nos. each and trials on different class of locos associating RDSO.	Tender opened and under TC at CLW. To be expedited.
7	Manufacture of WAP5 locos for commercial speed of 200 kmph through procurement of two loco sets of the modified design gear case and other assembly components from M/s BT as per drawing and specifications furnished by RDSO for trials.	RDSO to submit report along with recommendations to Board for further consideration.
8	Development of Fire surveillance / detection, alarm & automatic fire-fighting system to RDSO specs and trials on 10 WAP-4 and 10 WAG-7.	RDSO to review the requirement and submit to Board for further consideration.
9	Trials with M/s Fine finish varnish and Rotomac - an alternative for Hitachi varnish scheme.	CLW and RDSO to expedite.

Electrical Development Directorate

- **Item discussed: Improving energy efficiency - CDM based CFL distribution progress.**

EDEE/Dev highlighted the progress of the project and mentioned that some of the Railways particularly in Eastern Region (ER, SER, ECR & ECoR) needed to pay little more attention to monitor this project. This project was launched by Hon'ble MR on 21.12.2009 and it was requested that CEEs monitor it closely at their level.

A presentation was made by M/s C-Quest on implementation issues particularly relating to documentation by various Railways/PUs. M/s C-Quest Capital requested all CEEs to guide Sr DEEs to take the corrective actions immediately and report on action taken as subsequent monitoring and verification activities are linked to satisfactory completion of these corrective actions. The actions that need to be taken were advised to all CEEs on 15.6.2010 itself vide Board's letter no. 2008/Elect(Dev)/225/9 dated 15.6.2010.

CEEs were also requested to direct Sr DEE's/DEE's to undertake spot checks on random basis to ensure that CFLs are in place and in use in high usage areas. The reports of these spot checks are to be sent to C-Quest and also to the Railway Board by end June 2010.

Member Electrical brought to the attention of all the CEEs the significance of the project and directed that implementation issues need to be recognised with due sincerity by every level of officers coordinating the project and desired to take the corrective actions and submit information to Board. This project is in the overall benefit of IR and humanity. He further desired that the progress be reviewed periodically at Zonal/PU level.

The above corrective actions along with data will be reviewed in a meeting to be held at Railway Board in due course.

- **Setting up of Electric loco and EMU factories at Madhepura & Kanchrapara respectively.**

EDEE/Dev mentioned about the need for setting up these factories in JV (railway equity 26%) with partner selected through ICB and the product that will be manufactured in these JV companies. The agreement adequately safeguards IR's interest and ensures guaranteed performance similar to international best practices. These factories are being set up with an assured procurement over long term period with comprehensive maintenance of rolling stock. For the first time on IR, even the bid documents for Madhepura factory have been approved by the Cabinet. Bid documents for KPA factory will also be put up to the Cabinet for consideration and approval.

- **Electric Loco Assembly and Ancillary Unit of CLW at Dankuni.**

An Ancillary Unit of CLW is being set up at Dankuni with no equity support from IR on Railway Land where 100 sets of Static Equipment and Loco Shells will be manufactured per annum to ramp up production of 3 phase locos at CLW. This unit will cater to around 1/3rd of the requirement of CLW to meet the demand of locos on IR over 10 years. The products manufactured at Dankuni will be integrated with other equipment to be assembled at CLW to turn out fully commissioned locos ex CLW.

- A copy of the presentation was also given to CEEs, a summary of the same is enclosed.

TRD, POWER SUPPLY, ENERGY CONSERVATION & MAN POWER PLANNING

- AML stressed the need for detailed failure analysis and data collection. He instructed that all cases of panto entanglement shall be reported in the prescribed proforma as laid down in para 8.02 & 9.03 of ACTM. He also mentioned about the failure of Grid in ECR due to heavy storm caused collapsing of incoming grid towers. He emphasized to draw contingency plan for such exigencies.
- Railways were advised that OHE failure on account of bad weather, Lightning arrester, earthing, and failure of section insulators shall be totally eliminated. Railways shall endeavor to take a drive to check the proper adjustment of cantilevers, ATDs, Section Insulators alongwith tree trimming drive. The detail analysis of CB tripping including number of cases, relay setting shall be done regularly to avoid conversion of tripping cases into major failures. ML advised to explore the possibilities of using old transformers with parallel operation in TSS. He instructed that all the trials & result evaluation shall be time bound .
- The need for electricity saving & energy audit was stressed. A case was mentioned for provision of over capacity of transformer based on excessive forecast of future load without examining current load. Special attention shall be paid during energy audit on different aspects of heating and cooling, pumps & light load and action to save the energy shall be drawn accordingly.
- The detailed discussion on following agenda items is summarized below:
  - **Wheeling arrangement from Nabinagar Thermal power plant:**

    For wheeling the power through STUs, traction substations of Zonal Railways/Divisions are to be grouped state wise as only one application can be processed with the State Transmission Utility (STU) for grant of long term '**Open Access'**. Accordingly, Railways have been requested to furnish details of TSS. Since the power evacuation plan for Nabinagar is to be finalized on priority, Railways should expedite the information. State-wise application to different STU/SEBs need to be filed on priority for wheeling of power.
  - **OHE failures**: Special attention shall be given to ATD, cantilever, use of composite insulators in polluted area, cross examination of foot patrolling reports by higher authority, examination of repeated tripping cases and ensuring the availability of structure bonds.
  - Railways has represented about poor quality of POH of Tower Wagon. Railways were advised to explore the possibility of getting the overhaul of the equipment done through OEMs.
  - **Reliability improvement for grid connectivity:** There has been about 400% increase in punctuality cases on account of grid failure. Railways shall closely co-ordinate with the DISCOMS/STUs improve the reliability of power. Railways should also review the existing grid system and explore the possibility of improving the reliability by (i) having additional grid connectivity at multiple locations (ii) Asset replacement at SEBs, substation (iii) Proper coordination mechanism for power management specially during rainy and stormy weather.

- **Non-renewable energy**:

  Vision 2020 document unveiled by Hon'ble MR emphasize sourcing of at least 10% of energy used from renewable sources such as solar and biomass. Zonal Railways must plan for the same.

  Solar and wind energy shall be harnessed for feeding emergency lighting load, for electrification of LC gate. To achieve the target of sourcing 10% energy from renewable energy resources, Railways should explore the feasibility of tapping wind energy and may accordingly submit the proposal.

  The work of "Use of renewable energy sources for improving energy efficiency and energy conservation over Indian Railways" has been distributed amongst the Zonal Railways in 2010-11. Railways should expedite execution of these works on priority.

- **Energy conservation**:

  Attention were drawn for an energy audit report where scaled pipeline of the pumps, use of high capacity transformers for low load needs a critical review. RDSO shall draw the relevant guideline for close attention to be given to different such important points in a energy audit that shall be examined during auditing.

- **Review of Works costing more than 8 crore:**

  Around 30 works costing more than Rs. 8 crores are in progress under PH 'OEW'. The fund allotment during 2010-11 is Rs.427.50 crore (Rs 200.50 crore in DRF & Rs 90.0 crore in DF).

  Since there is fund constraint in DRF & DF, Railways have to prioritize the works based on their progress, completion target etc. Re-appropriation of funds for these works based on priority be done at Railways/Boards level for better progress of important works.

  These works shall be monitored at higher level and one page progress monitoring format has been circulated to all Zonal Railways vide Board's letter no. 2009/ Elect(G)/170/ 27 dated 25.03.2010 the progress shall be forwarded to Railway Board at an every three month interval.

Railway Electrification & CORE

- Address by CRB: Electrification is going to be the medium of transportation for the civilization. It has tremendous haulage capacity. There can be no constraints in the programme of Electrification. However, current limitation needs to be removed from Locos.
- Address by ME & AM(B): The Abstract Estimate should be sent by open line keeping into account their realistic requirements so that no new items are required to be included at detailed estimate stage. This will avoid variations between AE & DE.
- Transmission line works are pending for long in Chandiposh-Roxy, Gola-Muri and for Jhajha TSS. CORE and Open line to pool in their resources to get the works completed.

- The work of Gorakhnath TSS and Malatipat puram TSS have been badly delayed and needs expeditious completion.
- TRD road map needs to be finalized at the earliest by RDSO and RE Dte. of Board.
- Zonal Railways to identify new routes for electrification in consultation with operating counterpart so that the target of additional 14000 RKMs of electrification in 2010-20 as per Vision 2020 document is met with. This should also include the routes requiring 2 X 25 kV electrification.
- RDSO to initiate and expedite the procedure for finalization of specifications for silver bearing contact wire.
- RDSO to develop more sources for 2 X 25 kV TRD equipments. CEE/SECR requested for need of more sources for undertaking repairs of transformers for 2 X 25 kV system.
- The targets of new electrification and CRS sanctions for 2010-11 should be monitored closely by CEEs' of open line and CORE so that there are no slip ups.

Train Lighting & Air conditioning (TL/AC)

- **Action plan for improving reliability of AC & TL coaches:**
  - In Zonal Railways the axle /alternator pulleys with worn out groves with shining surface are in use, leading to slippage of V- belts en-route. Railways must take special drive for replacement of worn out axle/alternator pulleys. Each Zonal Railways should review the EAC of axle /alternator pulleys to ensure that the replacement is done within the prescribed life.
  - Each depot should ensure availability of modified gauge for checking the profile of V groove of axle and alternator pulleys. RDSO has already issued the drawings of modified gauge. PDC-Sept.'10.
  - Railways must ensure that V belts are used in matched set. The records of the mismatched V-belts should be available in depots so as to ensure the utilisation of such V belts in other set of the belts.
  - Zonal Railway must ensure availability of dyna drive in major coaching depots.
  - Zonal Railway must ensure availability of Coach Indication Panel (CIP) wherever ERRUs are provided.
  - In ERRUs and 25kVA inverters facility of downloading of data is available However it is observed that the data is not being downloaded from ERRUs and inverter. The main reason of data not being downloaded by Zonal Railways is due to problems of software in ERRUs and non availability of data downloading tool in depots. RDSO should examine the possibility of usage of net books for data downloading from ERRUs and inverters and issue appropriate instruction. PDC-Sept.'10.
  - Belt tensioning device should be replaced as per laid down periodicity of RDSO.
  - The log books in AC coach should be coach specific and the practice of making entries in diary or notebook by ACCI must be stopped. Railways must ensure availability of coach specific log book. The format of log book should be on pattern of SCR & SWR. PDC-Oct.'10.

- CAMTECH should make a trouble shooting directory in pictorial format for circulation in Zonal Railways. Each Zonal Railway should translate it in regional language for ease of understanding by ACCI. PDC-Sept'10.
- There should be periodic refresher training for ACCI in Zonal Training schools of the Railways. The mock up of major equipment i.e. AC package unit AC control panel, alternator, regulator etc. for practical hands on training of ACCI needs to be ensured.
- The tool kits of ACCI/ACCA needs standardisation. RDSO should standardise the tool kit including emergency feed in AC non AC coaches.
- ICF has manufactured 18 SG AC coaches with DC emergency feed extension couplers and the system is working satisfactorily in WR. This should be adopted as standard feature for future built SG AC coaches.
- Zonal Railways should ensure adequate availability of unit exchange spares in depots for timely attention to the coach.
- Zonal Railway should follow 16 point action plan circulated vide Board's letter no. 97/Elect(G)/180/7 dt. 2.9.99.

- **Progress of emergency lights in coaches**

  Out of 29189 eligible coaches (6166 AC and 23023 non AC), Railway have provided emergency lights in 10780 coaches i.e. 36.73%. The progress is not satisfactory. The work needs to be expedited.

- **Pantry equipment**

  CEE/RCF has reported the problem of inadequate no. of pantry equipments in Self generating non AC pantry cars of Duronto trains due to limited capacity of alternator. RDSO & PUs should work out the requirement of pantry equipment in consultation with IRCTC. The electrical scheme needs to be revisited by employing higher capacity alternator and battery. The no. of pantry equipments needs to be frozen quickly by PUs in consultation with RDSO. *PDC-Sept,'10.*

- **Review of trials and projects with RDSO**

  Development of 2x650 Ah capacity VRLA battery for SG AC coaches.

  ICF during the meeting has informed that they have already placed order for 20 coach sets of 2x650Ah VRLA batteries as per the decision of MSG meeting. This will help in developing redundancy in coach and also there will not be current sharing problem between two alternators of SG AC coach. First coach with 2x650 Ah capacity battery is likely to be turned out by ICF within Jul'10. In addition to above, instruction has also been issued to NER & NWR for provision of 2x650 Ah capacity battery for conducting trials. It appears that so far no action has been initiated by NWR and NER. Both the Railways should take necessary action in this regard. *PDC-Sept.'10*.

- **Trials with reverse cycle RMPU:**

  Reverse cycle RMPU has been provided in one coach and so far the performance has been satisfactory. Further, Board has issued directive for procurement of 8nos. RMPUs by RCF with reverse heat cycle arrangement. RCF should take necessary action. *PDC-Aug'10.*

- **Power factor correction arrangement in EOG rake**

  NR has provided power factor correction capacitor in two EOG rakes. These capacitors are MPP type rated for 500 V, 3 phase (3 kVAR for each compressor and 1 kVAR for each condenser and compressor motor) suitable for heavy duty with body insulated from earth. So far performance has been satisfactory. Following decision has been taken during the meeting with regard to this item.

  - RDSO should monitor the performance of power factor correction capacitor provided by NR. Based on the performance, a decision can be taken for making it future standard for all EOG coaches.
  - RDSO should examine that whether with the use of power factor correction equipment the existing design couplers can be retained for running 24 coach Rajdhani/ Shatabdi train.
  - The capacitor needs to be installed in the under frame of the coach and provision should be made for its isolation in case of development of fault.

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