Annexure II

Detailed recommendations of the MERC to the State Government on the restructuring of MSEB

(Accompaniment to Commission's letter No. MERC/Legal/120/927 dated May 14, 2004 to Secretary (Energy), Government of Maharashtra)

Reorganisation of Power Sector in Maharashtra

The Electricity Act, 2003 ('the Act') has been notified on June 10, 2003. As per the provisions of Section 172 (c) of the Act, the undertaking of the State Electricity Boards (SEB) established under section 5 of the Electricity (Supply) Act, 1948 are to be transferred in accordance with the provisions of Part XIII of the Act within a period of one year of notification of the Act, unless the State Government, by notification, authorizes the SEB to continue to function as a State Transmission Utility (STU) *or* licensee for such further period beyond one year as may be mutually decided by the Central Government and the State Government. Hence, unless MSEB is authorized to continue as per the provisions of Section 172 (a), restructuring of MSEB in accordance with the provisions of Part XIII of the Act will be a legal necessity[1].

The emphasis of the Act is to improve access to electricity, customer service and efficiency in operations through competition. The Act implicitly recognises the scope for competition in several segments of the industry, including in generation, supply/trading and also distribution of electricity. The need for restructuring of the sector emanates from the above objectives of the Act. Traditionally the electricity sector has been considered to have considerable economies of scale and scope that made vertical integration necessary. However recent advancements in technology, particularly in information and communication technology, have considerably diminished the advantages of vertical integration. Information Technology has ensured that the sector participants can make quick and informed decisions on their operations. It is now recognized that the disadvantages of vertically integrated monopoly operations in the form of operational inefficiency and poor customer service, outweigh the benefits of scale and scope economies.

The Commission is vested with important responsibilities in promoting the objectives of the Act and implementing its various provisions. As per the provisions of Section 86 (2) (iii) the Commission is mandated to advise the State Government on matters relating to reorganization and restructuring of the electricity industry in the State. The Act requires the Commission to introduce open access[2], facilitate intra-state transmission and wheeling[3], foster development of power markets[4], and also advise

[1] As per the provisions of Section 39 of the Act, read with Section 172 (b) of the Act, the STU is not permitted to trade in electricity beyond a period of one year. No exceptions or extensions are permitted on this provision. Hence, if distribution of electricity is presumed to include a deemed trading function (purchase of electricity for resale), the SEB would not be permitted to resell electricity purchased. Hence some kind of restructuring of the SEB would become inevitable, irrespective of whether the State Government authorized the SEB to continue as per the provisions of Section 172 (a). It is understood that this matter will be clarified by the Government of India

[2] Section 42 (2)

[3] Section 86 (1) (c)

[4] Section 66

the State Government on promotion of competition, efficiency and economy in activities of the electricity industry[5].

The Maharashtra State Electricity Board (MSEB) is the dominant utility in the State of Maharashtra. The manner in which MSEB is restructured will greatly influence the future operations of the power sector in the State and the attainment of the objectives of the Act. The State Government, through its consultants, made a presentation to the Commission on the restructuring options being considered for MSEB. This was followed by a letter dated April 13, 2004 whereby the State Government sought advice of the Commission on specific issues relating to restructuring of MSEB. The State Government also requested the views of the Commission on other matters that may be of relevance in the restructuring process. This letter from the State Government is provided as Annexure I to this document. In response to this reference from the State Government, the Commission is advising the State Government in accordance with the provisions of Section 86 (2) (iii) on the important issues and considerations. The Commission is keen that the statutory deadline of June 9, 2004 for restructuring of the sector is met, and hence is basing its views on the information presently available to it.

It needs to be recalled that MSEB is one of the few among the large State Electricity Boards that has not restructured its operations. Several State Electricity Boards have shown appreciable improvement in operating performance and service standards after restructuring, primarily on account of greater focus, accountability and administrative convenience that results from horizontal and vertical disaggregation of monolithic institutions. In the absence of restructuring the operations of MSEB have shown only marginal improvement in the past few years. The Electricity Act, 2003 offers the State Government and MSEB an opportunity to set matters right through structural and organisational reforms. This opportunity must be seized to ensure that henceforth the consumers get a better deal, while simultaneously safeguarding the interests of the successor entities of MSEB by equipping them adequately to face competition on a level playing field.

1.1 Evaluation of performance of MSEB

MSEB has a consumer base of approximately 1.3 crores. In 2003-04 its energy requirements for sale to consumers was in the order of 63,000 MU. Review by the Commission reveals that this not only makes it the largest utility in the country, but also larger than most international utilities with which its operations can be compared.

The financial performance of MSEB has deteriorated significantly over the years. As compared to a surplus of Rs. 403 crores in 1999-2000, the Board has sustained

[5] Section 86 (2) (i)

losses of Rs. 2841 crores and Rs. 540 crores in 2000-01 and 2001-02. The Board had an accumulated loss of Rs.300.66 crores at the end of FY 2004. However, in addition to this amount of accumulated loss, the Board has sundry debtors for power sales of almost Rs. 8000 crores. Given that a significant portion of these receivables has been outstanding for over a year, it is likely that the Board will need to write off a large part of the total receivables against supply of power. This would substantially increase the accumulated loss of the Board, which would in turn need to be adjusted against part of the Board's capital.

The poor financial performance of MSEB can be traced to the lack of focus in addressing the key issues that has been contributing to the financial losses. In particular the poor record of MSEB can be traced to two key factors – high T&D losses and poor collection efficiency, as depicted below. The analysis is based on data made available by MSEB, which has been used as a matter of convenience only for the present purposes.

T& D losses

Year	2000-01	2001-02	2002-03
Energy input into system (MU)	62051	64081	65835
Commission Target on T& D loss (%)	26.87	26.87	26.87
Actual MSEB performance[6] (%)	39.41	39.17	38.59
Cost of excess T&D loss (Rs. Cr.)[7]	2449	2483	2454

Collection efficiency

Year	2000-01	2001-02	2002-03
Revenue billed (Rs. Cr.)	11797	12123	12517
Collection as % of sales	91.13	89.27	89.13
Cash shortfall due to lower collections (Rs. Cr.)	1046	1301	1360

The Commission desires to point out that MSEB's present financial situation had been far worse had the consumers not been required to bear the cost of inefficiency through the T&D loss surcharges and the Regulatory Liability charges. These charges were implemented to ensure that the financial situation in MSEB does not unduly impact the consumer due to further deterioration in supply parameters. The Commission believes that at the core of the inefficiencies lies the unwieldy structure of MSEB that does not permit the management to focus on the key issues contributing to financial losses and poor service. The Commission has reviewed the structures of the successor distribution companies in key states. Unless the distribution business is of manageable size, it would be extremely difficult for the

[6] Based on data made available by MSEB. Loss level could vary from estimates provided by MSEB in tariff filings.
[7] Calculated at the average cost of service for the year

management to focus on the problems and usher radical improvements. A comparative analysis of the size of distribution companies in various states is provided in tabular form in Annexure II to this document.

The poor financial performance of the Board has an inevitable impact on State finances by necessitating subsidies and subventions that can otherwise be avoided. The State itself has significant budgetary constraints. The focus of the restructuring process should be on making the sector in the State a net revenue generator for the State as soon as possible. The present state of finances of MSEB may require a one-time support from the State Government. However care should be taken to ensure that support from the State does not become a recurrent need, and the configuration of the distribution companies and the implementation arrangements should ensure the same.

1.2 Overview of the provisions of the Act affecting the reorganized sector structure

Certain provisions of the Act lay down the basic requirements on sector reorganization and restructuring in the State. These include,

1. Section 39 (1), which requires the State Government to notify the Board or a Government company as the State Transmission Utility (STU). As has been mentioned earlier, unless authorized by the State Government to continue the functions as a STU or a licensee under the provisions of section 172 (a), the undertaking of the Board is to be transferred to a Government company as per the provisions of Part XIII of the Act within one year of notification of the Act, i.e., by June 9, 2004.

2. As per the proviso to section 39 (1) of the Act, the STU cannot trade in electricity. Similarly under the provisions of Section 40, a transmission licensee is not permitted to trade in electricity;

3. As per the provisions of Section 39 (2) (d) and Section 40 (c), the STU and Transmission licensee respectively are required to provide non-discriminatory open access to all licensees immediately and to consumers as and when open access is permitted by the Commission under section 42 (2) of the Act and subject to payment of a surcharge;

4. As per Section 9 (2), every person, who has constructed a captive generating plant and maintains and operates such plant, shall have the right to open access for the purposes of carrying electricity from his captive generating plant to the destination of his use;

5. The State Load Despatch Centre (SLDC) is to be established under Section 31 and is to be operated by a government company or authority or corporation established or constituted by or under any State Act, as may be notified by the State Government. However until a Government company or any authority or corporation is notified by the State Government, the STU is to operate the SLDC. The SLDC is not permitted to trade in electricity.

6. The sixth proviso to Section 14 permits the presence of multiple distribution in the same geographic area, subject to certain criteria on capital adequacy, creditworthiness and code of conduct being met. No applicant who complies with all the requirements for grant of licence, can be refused grant of licence on the ground that there already exists a licensee in the same area for the same purpose. While the repealed Acts did nor prohibit multiple licensing, the Electricity Act, 2003 includes enabling provisions on the matter;

7. As per the seventh proviso to Section 14, a licensee may undertake distribution of electricity for a specified area within his area of supply through another person, and that person is not required to obtain any separate licence from the concerned State Commission. The distribution licensee shall be responsible for distribution of electricity in his area of supply;

8. As per the eighth proviso to Section 14, where a person intends to generate and distribute electricity in a rural area to be notified by the State Government, such person shall not require any licence for such generation and distribution of electricity, but would need to comply with the measures which may be specified by the Central Electricity Authority under section 53.

The above provisions of the Act provide the basic structural framework for the reorganization of the power sector in the State. Section 172 provides the time frame for restructuring of the SEBs while Part XIII provides the mechanisms for undertaking the modalities involved in the restructuring process, including framing of transfer schemes, transfer of assets and liabilities, personnel, rights and obligations, etc. Beyond this however the Act is not prescriptive on the structure of the successor entities of the SEBs. Undoubtedly the specific structure adopted will vary from state to state. In Maharashtra, where there is considerable competitive activity in generation and distribution (particularly in the Mumbai metropolitan area), and the interest in providing service through alternative means such as open access and parallel licensees is considerable, the reorganization of MSEB must ensure that competitive activity is encouraged to the extent possible.

1.3 Key issues in reorganisation of MSEB

The key issues that need to be dealt for the restructuring can be classified into four categories,

1. Structural issues including,
   - Overall long term and short term market design
   - Optimum size of generation and distribution companies
   - Formation of trading company or companies
   - Compatibility with future market structures
2. Financial and investment related issues including,
   - Addressing past losses in books of MSEB
   - Adequate capitalization and appropriate capital structure of successor entities
   - Contingent liabilities
   - Accounts receivable
   - Subsidy requirements
   - Capital Investment requirements
3. Tariff related issues including,
   - Tariff rationalisation requirements
   - Cross-subsidy reduction and surcharge
   - Multi-Year tariffs
4. Technical issues including,
   - Management of power generation and procurement costs
   - Scheduling arrangements
   - Balancing arrangements (including extension of Availability Based Tariff (ABT) mechanism to state generators and licensees/loads)
   - Settlement systems
   - Metering of interface points

The above issues are often inter-related, and hence need to be considered in totality and not in isolation while dealing with sector reorganisation and restructuring. The internal capabilities of the successor organisations of MSEB need to be strengthened appropriately to ensure that these organisations are equipped to meet the competitive conditions expected henceforth. The benefits of any restructuring framework would

always be limited by the manner in which the framework is implemented. The Commission is concerned that the organisational capabilities in MSEB at present may not match the complex requirements ushered by the Electricity Act, 2003. The Commission is of the firm opinion that development of implementation capabilities must be accorded the highest priority by MSEB, and the changes should be prioritised appropriately to ensure effective implementation. This aspect is discussed further subsequently.

1.4 Reorganisation of the sector structure

As discussed in Section 1.2, the Electricity Act, 2003 provides the basic requirements that must be adhered to while reorganising the sector. However, while these minimum requirements are to be adhered to, the Commission is of the view that addressing such minimum requirements would not be adequate to meet the objectives of the Act. To usher true competition, the sector restructuring process has to identify and prioritise the areas of competition in accordance with an overall market design. This section identifies the areas that would need specific attention for market design, along with the observations of the Commission on the issues involved.

Generation

The MSEB has an overall installed capacity of 9378 MW, which is the highest among the State Electricity Boards. The key question insofar as restructuring is concerned is on whether the entire generation capacity should be transferred to one generating company, or whether multiple generating companies should be created.

The Electricity Act, 2003 does not contain any stipulation on the size of the utilities, but does permit the Commission to prevent abuse of dominant market power that can adversely affect competition in the electricity industry[8]. However market power arises primarily when the generators participate in competitive wholesale markets and do not operate under PPAs. As long as the generation capacity is contracted through price regulated long-term power purchase agreements, the issue of market dominance would not arise. Hence size of the generating company and its overall market share would not influence price formation. Accordingly the Commission believes that the decision on the number of successor generating companies to be formed needs to be taken by the State Government based on administrative convenience and the operational synergies that may exist between generating stations, and not on market share.

[8] Section 60

The Commission is of the opinion that existing baseload and mid-load generation capacity that is embedded in MSEB, or is sourced through long term PPAs, should operate through long-term bilateral arrangements between the generators and the distribution companies. The option of differential allocation of PPAs based on paying capacity of the distribution companies can be considered since this could facilitate price stability in the transition period. However, the MSEB stations where the PPAs are to be developed now, the PPAs should be restricted to a term of three to five years. This will ensure the following goals,

- Flexibility would be available for subsequent changes after clarity emerges on tariff rationalisation, cross-subsidy elimination and loss reduction post unbundling;

- Some of the stations may also participate in competitive wholesale markets subsequently. This would aid market development by deepening the competitive wholesale markets

The State Government's reference to the Commission suggests that proportionate allocation of hydro-power is being considered for the distribution companies. The Commission is of the opinion that an option wherein the peak load stations (including storage hydro) are contracted to a trading intermediary needs evaluation. This could aid operations, particularly in the transition period. This is discussed in further detail subsequently.

Wholesale electricity markets

Open access and competition in electricity markets depends on the market structures to a great degree. Wholesale markets permit generators, distributors, eligible customers and intermediaries to source power on a least cost basis based on the price signals available from the market. A well designed wholesale market can reduce costs for the system as a whole since all resources in the entire system can be optimally utilitised based on the requirements of the various users, who may otherwise be dispatching their own contracted generation even as lower cost generation is available elsewhere in the system. Wholesale markets would also reduce the reserve margins individual utilities would have to maintain, thus reducing capital investments.

The Act requires the Commission to promote the development of a market (including trading) in power. The Commission is required to be guided by the National Electricity Policy (NEP) in this regard. The NEP is yet to be formulated by the Central Government, and hence it would be premature for the Commission to comment on the nature of wholesale markets to be implemented in Maharashtra. However from the perspective of restructuring of MSEB, the role of the SLDC in the effective operations of such markets needs to be taken cognisance of. Even if structured

electricity markets are not implemented immediately, the very act of creating multiple distribution companies would require certain cost pooling, balancing and imbalance settlement arrangements to be put in place. The SLDC would have an important role in implementing the arrangements, as would the distribution companies. The Availability Based Tariff (ABT) mechanism would need to be extended to State generating stations and distribution companies. The Commission desires to bring to the attention of the State Government these important aspects, since they will inevitably be necessary to support the disaggregated industry structure. The State Government should ensure that MSEB and its successor entities are adequately prepared for these challenges.

Transmission and System Operations

The structural aspects of State Transmission Utilities and Transmission Licensees are well laid out in the Act. Section 39 and 40 prohibit trading of electricity by the STU/ transmission licensee. MSEB has deemed STU status under Section 172 of the Act for a year, unless extended by mutual decision of the State Government and the Central Government.

The Commission is of the view that the separation of the transmission function from trading operations is the essential first step that needs to be undertaken for ushering non-discriminatory open access and competition in the sector. This should be done at the earliest. The Act requires this process to be completed by June 9, 2004 and the State Government/MSEB should endeavour to meet this deadline.

As per Section 31 of the Act, the SLDC is to be operated by a company or authority notified by the State Government. Till the time the separate government company or authority is notified, the STU may operate the SLDC. The Commission is of the opinion that in the initial years the SLDC should be operated by the STU. The operations of the STU and SLDC are closely linked, and the organisational separation of these two functions should be undertaken only after robust systems and processes are established for interaction between the two. The Commission would communicate to the State Government the need for separation of these organisations at an appropriate time, and for the present phase of restructuring the Commission is in agreement with the approach of the State Government of authorising the STU to operate the SLDC.

While having recommended operation of the SLDC by the STU for the present, the Commission is of the view that the accounts of the SLDC must be maintained separately from that of the STU. Operationally, the SLDC should be independent of the STU. The State Government, while restructuring MSEB, should consider appropriate organisation structures for these functions.

The State Government may also consider establishing a representative body from the industry to oversee the operations of the SLDC periodically, particularly on matters like market rules, operating codes, dispute resolution, etc. All major generators and suppliers, transmission organisations and distribution companies should be represented on this body.

Trading

Trading is a largely unregulated activity as per the Act, although the Commission may specify duties of the trader as per provisions of Section 51 of the Act. As per Section 86 (1) (j) the Commission may also fix trading margin, if considered necessary.

The separation of trading functions would entail the divestment of existing power purchase agreements by MSEB either to a separate trading entity or to the successor distribution company or companies. While the formation of a trading company to take over the PPAs of MSEB is the simplest option, it continues the present "single buyer" arrangements. Hence the Commission recommends that the generation and power purchase portfolio should be vested to the distribution companies to the extent possible. In particular all base-load plants should necessarily be vested in the distribution companies. For peak load plants and hydro stations that meet the peaking load, the decision of vesting to a trading company or the distribution companies will have to be taken in view of the objective of cost minimisation requirements, cross-subsidy transfer issues between distribution companies (if any) and operational constraints. The Commission believes that it may be beneficial (particularly in the transition period) to establish a trading company that is vested with the peak load stations, and also mandated to trade on behalf of the distribution companies. The State Government may look into the issue in further detail before deciding upon the succession structure of MSEB.

The Commission is also of the opinion that the STU should not have any ownership interest or managerial control in any trading company set up by the State Government for being vested with the contracts for the existing generation portfolio. This is essential to maintain neutrality and will be consistent with the spirit of the Act. Similarly, since the distribution companies have an inherent trading role, the STU or transmission licensees should not have any beneficial interest in them.

As mentioned earlier, the Commission is of the view that well designed trading arrangements will enhance market efficiency and reduce costs. The Commission will endeavour to promote trading and open access. The arrangements proposed for restructuring of MSEB should be conducive to trading of electricity. Necessary systems and processes should be established in the STU and SLDC in this regard.

Distribution

Structuring of the distribution companies presents the most immediate and important challenge in the restructuring process. The Electricity Act, 2003 does not specify any structural attributes for distribution licensees. However it explicitly permits multiple licensees in a geographical area[9], subject to certain basic criteria on capital adequacy, code of conduct and creditworthiness (as specified by the Central government) being met. The same section of the Act[10] allows the distribution companies to undertake supply through another person who is not required to obtain a license. However the obligation of the licensee remains undiluted in such cases. The Act also permits composite generation and distribution schemes in rural areas to operate without licenses.

The reference of the State Government to the Commission, insofar as the distribution business is concerned is on the following issues:

a. **Structure of distribution companies** – Three options have been presented before the Commission.

   (i) Extension of existing structure through a single distribution company being vested with the distribution business of MSEB (Option 1)

   (ii) A traditional or balanced distribution company structure featuring three distribution companies (Option II) having comparable urban and rural consumer mix

   (iii) An urban-rural structure featuring two urban and four rural distribution companies (Option III).

b. **Licensing area for issue of second or subsequent distribution licenses –** The State Government has requested the Commission's views on the second distribution license area.

On the first issue, it appears from the State Government's presentation and letter to the Commission that the State Government is inclined in favour of Option III for restructuring of the distribution business of MSEB. The Commission appreciates the need to focus better on efficiency improvements and also for permitting competitive response through price reductions to prevent flight to captive generation or alternate supplies under open access, as envisaged in Option III. However it also needs to be mentioned that unless the Commission is provided with firmer basis on assumptions on the efficiency improvements and competitive response, it would not be possible for the Commission to verify the validity of such assumptions. For example, the presentation before the Commission appears to indicate that under Option III, the loss

[9] Sixth proviso to Section 14
[10] Seventh proviso to Section 14

reduction would be 4% per annum in urban areas and 1% in rural areas, whereas in Option II it would be only 1% across the board. The Commission is unable to identify the reasoning for this distinction.

It also needs to be borne in mind that the three Discom configuration in Option II and the six Discom configuration in Option III do not lend themselves to easy comparison. The Commission believes that even if a traditional (balanced) structure were to be adopted, the three Discom structure proposed would continue with drawbacks of large size that presently ails MSEB. In general the Commission believes that the following criteria should be adhered to while restructuring the distribution business of MSEB.

1. The distribution companies formed should be manageable in size, in terms of the system demand, number of consumers served and the geographical spread of the utility. The Commission has reviewed the size of distribution companies formed through the restructuring process in several other states. A summary comparison is attached as Annexure II to this document.

2. While some dissimilarities in size, consumer mix (revenue potential) and other attributes is possible, the State Government should ensure that the dissimilarities do not result in a situation that makes the operations of any particular company unviable. The State Government should also identify the safeguards necessary to prevent this eventuality.

3. The Commission is cognizant of the fact that the PPA portfolio may be partially or fully allocated to the distribution companies. The principles for allocation of PPAs should be determined upfront. While an optimal cost allocation based on the "capacity to pay" of each distribution business may be necessary, the allocation process should ensure that other objectives of restructuring are most appropriately met, and risks are minimised. The key risks that need to be addressed include,

    - Risks arising out of high dependence on particular generating stations/units;
    - Hydrology risks in case of hydro stations
    - Price risks
    - Seasonality risks arising out of seasonal variations in demand and availability
    - Financial risks arising out of change in consumer mix, tariffs, etc.

4. The Commission appreciates that in the transition period the divergence of retail tariffs in any particular category across the areas served by the erstwhile MSEB needs to be limited. However, in view of the potential differences in consumer mix across distribution companies due to the divergence of tariffs and costs, and also on account of differences in system losses and collection efficiency, preventing divergence of tariffs would be a difficult task. The State Government should formulate specific mechanisms as a part of the restructuring process in this regard, to ensure that the objectives are met. The Commission on its part will provide its specific inputs and comments once proposals/options are received from the State Government.

5. The State Government has requested the views of the Commission on tariff rationalisation trajectory, implementation of open access and the corresponding surcharges as inputs for the restructuring process. The approach of the Commission on tariff is discussed in Section 1.6 of this document. As discussed there, there are several externalities involved in these decisions and at an appropriate time the Commission will evolve suitable guidelines and regulations in this regard considering various aspects. The Commission will formulate the regulations by June 9, 2004, which could envisage suitable studies over a period of time for determining the phasing of open access and the trajectory of cross-subsidy surcharge. At this stage the process of allocation of power purchase agreements and other liabilities should ensure that sufficient flexibility is maintained to accommodate reduction in cross-subsidy and surcharges and their eventual elimination.

6. Specific attention would be required for rural areas of the State since the AT&C losses are highest in these areas. As per information available with the Commission, several rural circles have T&D losses in excess of 50%. Most of these circles have low collection efficiency, some having as low as 40% of current billings. Combining the two it would appear that only 20% of the energy supplied is actually collected. This is an alarming situation and needs to be remedied. The Commission has already opined earlier that the new distribution entities should be manageable in size to prevent the new managements in the distribution companies facing such adverse situation from being overwhelmed by widespread occurrence of the problems. Innovative arrangements like franchising arrangements should be attempted in a structured manner to contain the financial losses in such areas and improve the quality of supply. Participation of local communities and entrepreneurs through mechanisms that incentivise superior performance could be beneficial in this regard. Recent studies on franchising of rural

supplies identify significant improvement potential through such arrangements. It needs to be remembered that the financial issues in such areas arise out of a combination of poor operating efficiencies and adverse consumer mix, and hence subsidies from the State Government (which primarily addresses the consumer mix issue) would not be adequate for addressing the situation.

As far as the issue of the license area of the second distribution licensee is concerned, the Commission will have to be guided by the contents of the Electricity Act, 2003, and the policies formulated under it. The Commission appreciates that there could be opportunities for the new entrants to "cherry pick" more remunerative areas and that this could affect the operations and finances of the successor entities of MSEB. However, the intent of the Act is to promote competition and the Commission is averse to recommending any structural measures that could be perceived to be negation of the intent of the Act in any manner. The focus of efforts on restructuring of MSEB should be to ensure that successor entities start on a firm footing, and are equipped to compete on an even keel with other sector participants who may wish to compete with it.

1.5 Financial and investment issues

Given that the MSEB's current financial position and annual performance is not favourable, the Board would be expected to propose a Financial Restructuring Plan (FRP) laying down blueprint for future operations of the successor entities such that the companies become self-sustaining and profit making within a defined period of time. This is seen as an imperative for turnaround of the successor entities. The table below highlights the various issues that need to be taken into account in the FRP proposal and certain imperatives of the turnaround plan.

Aspect of Financial Restructuring	Commission's observations
FRP Objectives	Laying down clear objectives for the FRP process is of paramount importance in evolving a workable plan. The Commission suggests that for the purposes of creating a practical FRP, the objectives be specified in terms of the following parameters: (a) A timeframe target for cash breakeven of each entity of the business and wiping out of any incremental accumulated losses from the time of unbundling onwards (b) A timeframe target for tariff rationalisation through a. Phasing out of cross-subsidy, and b. Returning the Regulatory Liability Charge (RLC) awarded by the Commission to be used by the MSEB for funding the cost of the excess T&D losses, and to be returned to the consumer categories from which the RLC has been collected in future through tariffs (c) A timeframe for achievement of specified T&D loss reduction and collection efficiency targets The Commission recommends that a reasonable timeframe be laid out for reaching these objectives, which is neither too ambitious to be practically achievable, nor so long as to create the risk of significantly worsening the financial position of the entities.
Balance Sheet Cleanup	The Commission recommends that the successor entities should be provided with clean balance sheets on unbundling, as is the normal practice adopted by States while disaggregating their SEB's, through loan write-off's and/ or conversion of loans to equity, and possible writedown of equity against losses, etc. The Commission expects that provision of clean balance sheets will be of paramount importance in ensuring the following: (i) That the entities (particularly select DISCOM's) are individually in a position to raise debt finances from commercial funding sources (ii) That the entities are in a position to redistribute returns to shareholders (which would not be possibly under the Indian Companies Act if the companies carry forward accumulated losses). The Commission envisages that upon sector turnaround, the individual entities would be self-sustaining, profit earning companies which pay dividends to the GoM as shareholder, thereby balancing the GoM's outflows to the sector (in the form of targeted subsidies to specific consumer groups)
Balance Sheet Disaggregation & Asset Valuation	Based on the practices observed in other states, the Commission presumes that the assets and liabilities of the Board will be disaggregated and allocated to the various successor entities on the basis of "end-use". As such, the Board may value assets at existing written down value as per the books of accounts or on the basis of business valuation i.e. the future earnings potential of the various asset classes. In valuing the assets, the Commission recommends that the Board adopts the following prudent practices which have observed in certain FRP precedents in other states: (i) A physical verification of assets is desirable to ensure that there are no major discrepancies between the written down value of assets in the Board's books and the actual assets available for the business of the Board (ii) Section 131 (2) permits valuation of assets based on revenue potential. The approach to determining the revenue potential should be scientific and should not result in ad-hoc asset valuation. Consistent with the stated objective of the State Government, care should be taken to ensure that there is no tariff shock on this account.
Capitalisation & Liability Allocation	The Commission recommends that the balance sheets of individual entities be structured such that:

Aspect of Financial Restructuring	Commission's observations
	(i) The capital base of each entity provides room for adequate returns earning, which in turn will enable investments for the future (ii) Liabilities are, by and large, allocated between entities based on fair principles of end-use. Redistribution of liabilities between entities in order to bridge differences in financials and performance may be acceptable to a reasonable extent. However, the Commission is not in favour of excessive use of liability allocation as a means to bridge differences between the distribution companies. This could create difficulties for the companies as tariffs are rationalised further. Each entity should be in a reasonable position to generate the surpluses required for future capital expenditure, and no entity should be burdened beyond a reasonable extent with debt liabilities vis-à-vis the other entities in the sector (particularly as the Commission expects competition to enter the sector in the near future)
Receivables	The Commission observes that the Board has a specific problem with regard to an inordinately high level of receivables. The receivables position of the Board has been steadily deteriorating over the last few years, in spite of the Commission's frequent directives to attend to this matter. The Commission deems it undesirable to carry forward such a high level of receivables to the successor entities. The aging analysis of the receivables profile of the Board suggests that a significant portion of the receivables may practically not be realisable. The Commission recommends that the FRP should incorporate: (i) Adequate provisioning for non-realisable receivables so as to present more realistic opening balance sheets to the successor entities (ii) A clear plan and timeframe for improvement in collection efficiency The Commission observes that a significant portion of receivables comprises dues from State Government agencies. The State Government should evolve appropriate mechanisms for settlement of these receivables by ensuring early settlement of these dues or their write-off against equity, accrued payments to the State Government or outstanding loans from the State Government. Further, the Commission is of the view that the entities should not be unduly burdened with the financing costs associated with the carrying of such practically non-realisable receivables. The Commission directs therefore that only reasonable levels of short term and working capital funding be allocated to the successor entities, and that the GoM must evolve a solution for settlement of excessive borrowings that have been raised in order to fund the excess receivables.
Contingent Liabilities	The Commission is of the opinion that the turnaround plan for the entities should not be burdened with excessive risks beyond the control of the entities. Therefore, the Commission recommends that the entities should not be burdened with contingent liabilities, which place the FRP at risk. This has been the practice in several states that have restructured in the past. The investments/liabilities due to DPC should be kept out of the restructuring exercise. This is consistent with the approach of the Commission articulated in its various tariff orders.
Transition financing and Subsidy Commitments	The FRP should include a plan for the State to provide such support as may be required during this transition period. The distribution companies would have transition financing requirements, with some distribution companies having greater needs than others. The State Government should initiate measures to ensure that the transition financing made available is adequate. Since this could involve protracted discussions with donors and bankers, the measures should be initiated at the earliest.

Aspect of Financial Restructuring	Commission's observations
	Timely payment of subsidy will be critical to the financial health of the successor entities. Given that cross-subsidy is to be phased out within a reasonable timeframe, targeted subsidy would be the primary mechanism for the entities to recover the costs of supply to particular consumer categories. The FRP and the restructuring strategy should factor this adequately. The Commission is in favour of employing a specific approach to assuring a stream of subsidy payment over and above normal budgetary subventions. This may take the form of the dedicated power sector reform fund through which GoM's payments to and receipts from the sector may be routed. Hence earnings from the sector in the form of dividends from profit making entities may be deposited in the fund and directly ploughed back into the sector as required for subsidy disbursements.
Investment Plans	The reduction in losses and addition of generating capacity would require outlay of considerable capital during the plan period. The State Government had earlier estimated that over Rs. 30,000 crores of investment may be required in the sector, with over 18,000 crores in transmission & distribution. These investments would be critical to the success of the FRP, in terms of reducing power purchases from external sources and reducing T&D losses as directed by the Commission, and also implementation of open access as may be directed by the Commission. The Board may indicate the investment plan it proposes integral to the FRP. Given the huge amount of investment requirement, it is unlikely that future borrowings and retained earnings alone will be sufficient to fund the required capital expenditure. Therefore, the Commission recommends that the State Government should evolve a plan for funding of equity infusion required to sustain the proposed investment plan.

1.6 Tariff related issues

The State Government, in its reference to the Commission, has requested for clarity on certain operational and tariff related issues. The Commission on its part believes that there are certain important operational issues that need to be addressed for enabling the successor entities to manage their operations in an efficient manner and reduce their costs.

Tariff Rationalisation

The State Government has referred the above matter for the views of the Commission. The Commission, in its past tariff orders has progressively rationalised the retail tariffs in the State. The philosophy of the Commission in this regard is well articulated in all the tariff orders of the Commission. The Commission has undertaken several measures in this regard as recounted below.

- Tariff rates and structures have been progressively rationalised;
- Two-part tariffs featuring separate fixed and variable charges have been introduced and minimum charges have been withdrawn;
- Time of day tariffs have been introduced for industrial consumers to encourage efficient consumption of electricity;

- Power factor incentives have been introduced to encourage consumers to improve power factor;

- A transparent Fuel and Other Cost Adjustment (FOCA) mechanism has been introduced to ensure that external cost changes are accounted for within the year itself;

- Reliability charges have been envisaged to ensure that a link is established between the quality of supply and the price of power.

The above measures have resulted in the tariffs of the MSEB becoming perhaps the most competitive in the country. However, having stated the above, it also needs to be recognised that the Commission has been constrained in the past on account of lack of information on the cost of service. On account of the data limitations the Commission has been constrained to adopt the approximate approach of "average cost of service" in preference to more precise methods like category embedded cost of service or marginal cost of service. The Commission may, in the future adopt such methodologies. Indeed this may become necessary to compute the tariff and subsidy requirements for the various consumer classes more accurately in future to reflect accurately the true cost of providing service to various consumer categories in different parts of the State and to provide appropriate economic signals and encourage more efficient alternatives to traditional supply methods. However at this stage, till there is greater certainty on the data regime, it will be difficult for the Commission to define the methodologies to be adopted and the timelines. However in principle the Commission remains committed to the implementation of cost based tariffs and progressive reduction and elimination of cross-subsidies.

The issue of tariff rationalisation is also linked to efficiency of the MSEB and its successor entities. The past performance of MSEB on this account has been dismal. For example, as against the loss target for 26.87% for FY 2003-04, the level considered for ARR determination is 36.62%. The Commission has been constrained to accept the loss levels projected by MSEB since denying the cost of such losses to the MSEB would affect the operations severely, and in turn affect consumers. However, to make the charges on account of inefficiency transparent, the Commission has introduced a T&D loss surcharge in the past and modified it to represent a Regulatory Liability Charge (RLC), to be used by the MSEB for funding the cost of the excess T&D losses, and to be returned to the consumer categories from which the RLC has been collected in future through tariffs.

The Commission also recognises that after the formation of separate distribution companies, the starting levels of system losses and collection efficiencies would vary between the distribution companies. While the difference in these starting levels

need to be recognised, inefficiency in poorly performing distribution companies cannot be perpetuated. Hence the Commission is of the opinion that along with the formation of distribution companies, specific investment plans and loss reduction plans must be developed for the distribution companies to reduce the losses on a war footing. All loss reduction projections adopted in the FRP must be backed by concrete implementation plans that aim at reducing the T&D losses to acceptable levels.

Surcharge for open access

The State Government, in its reference to the Commission has also requested for the views of the Commission on cross-subsidy surcharge. Under section 42 (2) of the Act, till the time cross-subsidies are eliminated, the Commission may introduce a surcharge in addition to the wheeling charges. The methodology of computation of the surcharge for open access is linked to the cross-subsidies incident on the consumers availing utility supply, since the Act provides that that such surcharge shall be utilised to meet the requirements of current level of cross subsidy within the area of supply of the distribution licensee.

The methodology adopted for computing the cross-subsidy surcharge can have significant bearing on the level of the surcharge. To send the right economic signals it may be necessary to adopt Long Run Incremental Cost (LRIC) as the basis for the surcharge computation. However, as stated earlier, the methodology to be adopted would depend on the availability of information. Aspects such as these would also depend on the recommendations of the National Tariff Policy.

Section 42 (4) also permits the Commission to impose an additional charge for consumers availing open access to meet the fixed cost of the distribution licensee arising out of his obligation to supply. This charge would be applicable only when there is an incidence of a cost being incident on the distribution licensee on account of open access. Since in a capacity constrained situation the possibility of such unavoidable fixed cost obligation is unlikely, there is no need to specify the charges on this matter at this juncture. The Commission will consider this issue when the need arises.

Implementation of Multi-year Tariff framework

Till date the regulatory approaches in India have generally followed the traditional cost plus framework of tariff determination. With the increase in number of regulated entities consequent to the Act, it may become necessary to move to a more benchmark oriented tariff framework featuring performance based regulation. The Electricity Act, 2003 also envisages implementation of a Multi-Year Tariff (MYT)

framework[11] featuring Performance Based Regulation. Such a framework would provide powerful incentives and disincentives to manage costs (including the costs on account of T&D losses) and increase revenues. Customer service improvement would also be facilitated since the MYT framework would also incorporate service standards to be adhered to by the utilities as per provisions of Section 57 of the Act. Based on the performance of MSEB over the past few years the Commission believes that the regulatory framework in a restructured environment must provide strong signals to the utilities for performance improvement. Only in such a case can a fair deal be effected for both utilities and consumers. While the potential introduction of such frameworks does not have a bearing on the restructuring process per-se, the new distribution companies must prepare themselves to perform effectively under the MYT regime.

Under the present integrated operations of MSEB, the Commission has evaluated performance based on the overall operating performance of MSEB as a whole. The disaggregation of the distribution business would permit the establishment of operating targets for the individual distribution companies. In fact the critical parameters (e.g. distribution loss, collection efficiency) could be tracked at the circle level to bring in greater focus on performance. The Commission recognises the need to consider the starting performance level on such parameters, which will inevitably vary between the distribution companies, and even between the operating circles in a distribution companies. The MYT framework would typically provide higher incentives to those companies that have a poor starting performance level. This would encourage them to bring down the inefficiencies at an accelerated pace, benefiting both the distribution companies and the consumers.

The Commission has considered the Aggregate Technical and Commercial (AT&C) loss reduction framework for application in a disaggregated sector structure. It must be noted that the AT&C framework only aggregates the system losses and collection efficiency in one composite parameter. While AT&C loss is a useful measure of cash performance of the sector, it would not still address the individual issues relating to system losses and collection efficiency, which must be addressed irrespective of the manner in which they are represented. The regulatory arrangements would continue to be designed on accrual basis with specific features being incorporated to deal with specific transition relating to system losses and collection efficiency.

The MYT framework typically does not specify the end use rates to be applicable, but specifies a transparent and formulaic mechanism for revenue requirement and/or rate determination. It needs to be recognised that after the restructuring of the sector and the introduction of mechanisms that promote efficiency and competition, divergence

[11] Section 61 (f)

of retail tariffs across the State is inevitable. However the State Government, at its option, can require the tariffs for any particular category to be maintained at levels desired by it. This would require the advance payment of subsidy to the affected distribution companies in a manner as the Commission may direct in accordance with the provisions of Section 65 of the Act.

1.7 Technical issues

The segregation of an integrated power sector and the entry of multiple players in functions that are amenable to competition would lead to significant changes in the operations of the sector. As a result, critical processes may need to be modified and in some cases, new processes would need to be in place that would govern the relationships between all the sector entities, and operationalise the restructured sector structure. A table on potential changes that may need to be dealt with are provided as Annexure III.

Efficient scheduling for minimising power procurement costs

The formation of the distribution companies and the allocation of generating stations to these distribution companies could result in potential loss of efficiencies that are ordinarily available in centralised dispatch by the SLDC. The Commission is concerned that unless adequate rules, systems and processes are not implemented by the successor entities of MSEB, the procurement costs could potentially balloon on account of inefficient dispatch, thus affecting the consumer. The example in Annexure IV illustrates this prospect.

Well-designed power markets based on either bilateral trading (including through exchanges) and auctions can avoid the possibility of such cost increases. However such markets take time to evolve. Till the time this happens the successor distribution companies can organise a voluntary “cost based pool” where all available system resources are dispatched on a least cost basis. This would help retain the benefits of centralised merit order dispatch, but without the disadvantages of a single buyer model. However to do so, the successor organisation would need to evolve suitable rules and processes for pool accounting and settlement. At an appropriate stage the private licensees in the State could also be permitted to participate in the cost based pool since this would help reduce the costs for all consumers in the State as a whole.

The Commission would like to emphasise that essential arrangements such as these must be conceptualised at the time of formation of the distribution companies and operationalised as soon as possible to ensure that the costs for consumers do not increase unduly. It needs to be borne in mind that development of the new

scheduling framework can be complex exercise involving significant amount of detailing. Hence actions in this regard should be initiated at the earliest. In fact, such matters should typically have already been considered and finalised simultaneously with the restructuring process. The approval of the Commission would also be necessary when such structures and rules are framed since the Commission is mandated to regulate electricity purchase and procurement process of distribution licensees including the price at which electricity is to be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State[12]. The Commission urges the State Government to ensure that the issues are adequately addressed.

Imbalance management

The actual dispatch in any power system would invariably vary from the schedules, leading to requirements on management and settlement of imbalances. The Availability Based Tariff (ABT) mechanism featuring the Unscheduled Interchange (UI) mechanism has been introduced at the inter-State level for management and accounting for imbalances. Under the inter-State ABT mechanism, the SLDC of MSEB has been scheduling energy as per ABT requirements[13], and monitoring purchases and sale of electricity through the ABT mechanism.

After restructuring of MSEB, the SLDC would not be making decisions on this regard since the Act requires it to be a neutral body not involved in the purchase or sale of electricity[14]. Thus the generators and the distribution licensees in the State would be required to manage their own imbalances and be financially responsible for the same. Accordingly the ABT mechanism would need to be extended to the generators and loads. The ABT mechanism would also serve as a trading platform and would thus promote efficiency and market development.

The Commission believes that this needs to be taken up on priority basis since substantial planning and investments may be necessary. The State Government/MSEB may also consider interim arrangements to ensure that there is no vacuum once the restructuring is undertaken. The Commission convened a meeting with the utilities and licensees on the matter on March 4, 2004 to take the matter forward, and was happy to note that a Committee has already been formed by MSEB to deal with the issue. The Commission provided additional directions to facilitate the development of an implementation roadmap and undertake implementation in a time bound manner. The Commission would like to underscore the importance of the issue once again. In particular, after restructuring of the MSEB, the need for the proposed arrangements will increase even further to facilitate

[12] Section 86 (1) (b)
[13] Core scheduling processes are defined in the IEGC, which are mirrored by the ABT arrangements
[14] Section 31

optimum scheduling and dispatch. The State Government on its part may facilitate the process if required.

Settlement

After the formation of the distribution companies both scheduled trades and imbalances would need to be settled financially. Since the number of interchanges would typically be very large for all generators, loads and also third parties accessing the networks, suitable IT systems would need to be implemented. In particular, since pooling is necessary for cost minimisation, the settlement rules would feature added complexities that would need to be considered.

As per the provisions of the Act, the responsibility of maintaining accounts of energy transmitted through the state grid lies with the SLDC[15]. Hence the settlement systems would typically need to be housed in the SLDC. The Commission is cognisant of the fact that the IT skills in this regard may not reside currently in the SLDC, and hence the SLDC may need to procure such services from external vendors. Since this would involve considerable implementation efforts, the Commission advises the State Government that action should be initiated in this regard at the earliest.

Metering and communication

The entire process of operationalisation of the distribution companies hinges on the availability of necessary metering and communication equipment. Even the system loss data that is currently being used for evaluating the options for distribution company formation is at best an informed guess since neither the points of injection to the distribution companies, nor the end use consumption is metered adequately. For operationalising the distribution companies, installation of meters of necessary accuracy class and adequate features for telemetry is essential both for energy accounting and for load management. On account of the delayed restructuring of MSEB, Maharashtra remains behind other states that have already put in place such facilities or are in the process of doing so. The Commission advises the State Government that the matter may be expedited after undertaking necessary review on matters involved, including on the identification of boundaries between the successor entities and corresponding metering requirements.

1.8 Transition management

As is evident from the foregoing, the restructuring agenda is elaborate and complex. It involves not only formation on new companies and transfer of business, but also changes in business processes and implementation of technological tools to manage the restructured sector operations. The State Government must ensure that the

[15] Section 32 (2) (c)

MSEB and its successor entities are adequately aware of their responsibilities consequent to restructuring and are equipped to deal with the complexities. Significant capacity development will be necessary in the successor entities of MSEB. This indeed poses a great challenge and the Commission is concerned on whether the MSEB, given its past operational history will be equal to the task.

As has been mentioned earlier, the Commission is very keen that the June 9, 2004 deadline is adhered to for restructuring of MSEB as required by Section 131 (2) of the Electricity Act, 2003. However Section 131 (4)[16] also permits further restructuring of the successor entities by the State Government. If necessary, in accordance with these provisions of the Electricity Act, 2003, the restructuring can be undertaken in a phased manner, with the basic requirements for compliance with the Act provisions being adhered to initially. Thus Option I on distribution company structuring referred to in the State Government's letter can be adopted as a transition arrangement only if this is deemed necessary to comply with the Electricity Act, 2003. Subsequent restructuring measures can be undertaken to usher a more permanent sector structure. However, even the subsequent measures need to be undertaken in a time-bound manner to ensure that reform objective are met in a reasonable time-frame.

[16] Section 131 (4), Electricity Act, 2003 The State Government may, after consulting the Government company or company or companies being State Transmission Utility or generating company or transmission licensee or distribution licensee, referred to in sub-section (2) (hereinafter referred to as the transferor), require such transferor to draw up a transfer scheme to vest in a transferee being any other generating company or transmission licensee or distribution licensee, the property, interest in property, rights and liabilities which have been vested in the transferor under this section, and publish such scheme as statutory transfer scheme under this Act.

Annexure I: Reference of State Government letter No ECA-1004/CR-8729/NRG-5 dated April 13, 2003

Separately Attached

Annexure II: Comparison of size of successor distribution companies

Maharashtha - Traditional (Balanced) Discom Option

	NorthCo	EastCo	S. West Co
Revenue (Rs. Cr.)	4770	4156	2126
Energy sales (MU)	17,267	15,297	6,908

Maharashtra Urban - Rural Discom option

	M'wada	Nasik	Vidarbha	Pune	UrbanCo	N Mumbai
Revenue (Rs. Cr.)	817	1232	1795	1793	1888	3526
No Consumers (mn nos)	2.43	2.76	2.7	3.86	3.95	3.35
Energy sales (MU)	4,381	6,538	6,017	7,743	4,981	9,813

AP

	APCDCL	APSDCL	APEDCL	APNDCL
Revenue (Rs. Cr.)	3597	1796	1517	1142
No Consumers (mn nos)	4.57	3.94	2.77	2.85
Energy sales (MU)	14549	7879	5651	6155
Area (sq km)	85,115	81,024	42,101	66,760

Karnataka

	BESCOM	MESCOM	GESCOM	HESCOM
Revenue (Rs. Cr.)	2300	1058.1	455.3	644.12
No Consumers (mn nos)	4.89	2.77	1.72	2.30
Energy sales (MU)	8659	4005	2458	3568
Area (sq km)	41,092	52,001	43,816	54,395

Rajasthan

	Jaipur	Ajmer	Jodhpur
Revenue (Rs. Cr.)	1348	1444	1060
No Consumers (mn nos)	1.80	1.76	1.52
Energy sales (MU)	4939	5150	3816
Area (sq km)	72,474	87,256	182,509

Haryana

	UHBVN	DHBVN
Revenue (Rs. Cr.)	928	1012
No Consumers (mn nos)	1.97	1.56
Energy sales (MU)	4737	4013

Delhi

	SWEDCL	CEEDCL	NNDCL
Revenue (Rs. Cr.)	1523	804	1081
No Consumers (mn nos)	0.86	0.85	0.81
Energy sales (MU)	3738	1974	2543

Annexure III: Potential changes in organisation structure, systems and processes consequent to restructuring of MSEB.

Current State in Maharashtra Power Sector	Possible Future State
• MSEB is the dominant utility and caters to bulk of power requirement in the State • MSEB is an integrated utility and hence the power sector in Maharashtra is largely characterised by embedded generation • MSEB is also single buyer of bulk power in Maharashtra and holds PPAs for purchase of power from CGS and IPPs	• Operation of a multiple number of buyers and sellers in a wholesale market • Trade is carried out through bi-lateral contracts and through a centralised market • Co-existence of a trading intermediary[17] or a scheduling and PPA management body jointly formed by the successor distribution companies
• Being the single buyer of bulk power, merit order scheduling is carried out by SLDC of MSEB • Centralised merit order operation is based on marginal cost of power of the different sources of supply • For embedded generation of MSEB, the variable cost of power for each plant is taken into consideration while preparing the merit order schedules. This is however subject to adjustment for machine characteristics.	• PPAs would be allocated to the distribution licensees. Scheduling will be carried out by each distribution licensee based on their portfolio of bi-lateral contracts • System operator may adjust scheduling based on posting made by generating companies due to system security considerations
• Network constraint in MSEB is carried out by the SLDC.	• Network constraint management will continue to be carried out by the system operator in the current form. However, it is important to minimise transmission network congestion to the extent possible, and hence network planning by the STU in consultation with the SLDC will assume greater importance
• Scheduling of reserve capacity by MSEB	• The operation of the balancing market would be through the ABT mechanism. However, as price signals from ABT diminish, there would be a need for other Ancillary Services procurement mechanisms
• Commitment of bulk supply is provided by integrated MSEB	• Commitment of supply in a multi buyer scenario rests with the respective generating companies (and trading bodies) • System operator may also have the commitment for maintenance and the operation of the reserves in the system

[17] A trading company may have significant operations in an energy deficit market, would play an important role till distribution companies have developed adequate power trading capabilities and would largely operate in the bulk supply market

Current State in Maharashtra Power Sector	Possible Future State
• Settlement mechanisms in Maharashtra power sector is simple as MSEB is the single buyer and is also responsible for whole of transmission and distribution functions in the State • Metering requirement is simple and is required only at the interface between MSEB and other suppliers inside the State and at the interface between MSEB and the national transmission network viz. PGCIL and the other State transmission networks	• During any interval of time, the actual quantity of supply by each seller of power and actual quantity of consumption by each buyer of power may not be correspond to their respective bi-lateral contracts. It is also possible that participants may draw from the grid without a bilateral contract backing the trade. • All of this would necessitate the operation of a balancing market, which would involve the determination of price of power at different points of time. More importantly there is a need for a settlement mechanism supported by metering arrangements which would monitor actual supply and consumption by several buyers and sellers in short intervals of time. This energy mechanism would be the basis for computation of financial settlement in the contractual as well as the balancing market. The balancing markets and settlement mechanisms could be run by the SLDC or by any designated third party • Under conditions of ABT regime being applied in the State, it may become necessary to have a mechanism that 'settles' energy flows between buyer and sellers in 15-minute time intervals. The mechanism would include settlement rules, payment security arrangements, provision for ancillary services, etc

The increase in the complexity of processes could result in significant transition costs that the sector has to bear to realize the benefits of the restructuring process. In view of this it is important to monitor the closely monitor the costs and the benefits of the process vis-à-vis the implementation blueprint developed.

Annexure IV: Illustration of Possibility in Increase in Average Cost of Power in a PPA Allocation Regime

	Genco A	Genco B	Total
Variable cost (In Rs)	0.50	1.00	
User A	30	0	30
User B	0	30	30
Total	30	30	60

	Energy Need
User A	25
User B	25
Total	50

Despatch under option of centralized and self - scheduling

	Genco A	Genco B	Total
Total	30	20	50
Unscheduled	0	10	10
Variable Cost (In Rs)	15.00	20.00	35.00

	Genco A	Genco B	Total
User A	25	0	25
User B	0	25	25
Total	25	25	50
Unscheduled	5	5	10
Variable Cost (In Rs)	12.50	25	37.50

Under allocated PPA regime centralized scheduling and settlements enables sale of power by User A to (marginal cost Rs 0.50 per unit) to User B (marginal cost Rs 1 Per unit) such that there is a no increase in the average cost of power

	Genco A	Genco B	Total
Variable Cost (in Rs)	0.50	1.00	
User A	30	0	30
User B	0	30	30
Total	30	30	60

	Energy Need
User A	25
User B	25
Total	50

Centralised balancing market operation

Despatch under option of centralized and self-scheduling

	Genco A	Genco B	Total
Total	30	20	50
Unscheduled	0	10	10
Variable Cost (In Rs)	15.00	20.00	35.00

	Genco A	Genco B	Total
User A	25	0	25
User B	5	20	25
Total	30	20	50
Unscheduled	0	10	10
Variable Cost (In Rs)	15.00	20.00	35.00