

January 30, 2007

**Action Planⁱ by Karachi Electric Supply Corporation Ltd. (KESC)
–Environmental and Social Aspects –**

No.	Action	Schedule
1	(1) Follow up on the Social and Environmental Impact Assessment (SEIAs), dated January 2007 for the Capacity Enhancement Projects (Korangi, Bin Qasim) A. Clarify the stack emission inputs used for the assessment and present the cumulative air quality impact assessment results for existing operation, new expansion operation, and combined operation, to verify the validity of the proposed mitigation measures. B. Present the cumulative thermal discharge impacts assessment results with isotherm contour lines on maps showing the temperature rise areas, the location of the mangrove forests and fishing villages, etc. for existing operation, new expansion operation, and combined operation, to verify the validity of the proposed mitigation measures. C. Present the Environmental Management Plan and the Social Management Plan with concrete specifications D. Obtain necessary Environmental Impact Assessment approvals from Sindh Environmental Protection Agency for the two SEIAs (2) Prepare SEIAs and conduct consultations for new investment projects (e.g. development of a new transmission line, development of a new grid station) which are subject the Pakistan EIA regulations.	(1) A, B, C: by March 31, 2007. (1) D: In accordance with the development schedule of the projects at Korangi and Bin Qasim. (2) In accordance with the development schedule of the projects.
2	(1) Conduct Environmental, Health and Safety (EHS) Audit for the Transmission and Distribution (T&D) Assets (or “EHS T&D Audit”) to identify areas of concerns and propose corrective actions on the following fields: A. Hazardous waste management (such as PCBs, used oil, etc.) B. Health and safety management: • minimum clearance distance from transmission lines / high voltage equipment • appropriate fencing, appropriate safety signs • reporting / awareness promotion C. Electromagnetic field management (e.g. compliance with ICNIRP Guidelines for occupational and general public exposure to EMF). D. Transmission lines right-of-way regulation compliance. E. Asbestos at existing thermal power stations. (2) Implement recommended corrective actions by the EHS T&D Audit.	(1) Audit to be completed by December 31, 2007 (2) Implementation schedule to be discussed and agreed between KESC and IFC.
3	Implement recommended corrective actions by ECTECH’s Environmental Auditⁱⁱ that was conducted for the generation assets in the areas of ambient air quality, wastewater treatment, and noise. Actions include: A. Conduct regular monitoring of ambient air quality around existing thermal power stations. B. Conduct treatment of wastewater at existing thermal power stations or send wastewater to a collective treatment plant. C. Properly declare “High Noise Level Areas” and enforce use of proper noise protection gears.	Design / implementation plan / budget to be submitted by December 31, 2007: Implementation to be completed by: A – 2007 and annually; B – December 31, 2009; and C – by June 30, 2008.
4	Strengthen the Company’s Environmental, Health and Safety, and Social Management System to ensure that the Company will conduct business in accordance with IFC’s Performance Standards on Social and Environmental	By December 31, 2007

	Sustainability (April 30, 2006). Actions proposed by KESC include: A. Strengthening KESC's Occupational, Health and Safety, and Environment (OHSE) Unit with proper level of personnel and budget. B. Establishment of Health, Safety and Environment (HSE) Policy C. Preparation of HSE manuals D. Formulation of Safety Committees E. Establishment of HSE Action Plan including HSE key performance indicators (KPIs) F. Establishment of cultural property protection policy / procedures	
5	Update and implement the Environmental Management Plan and Social Management Plan described in Section 7 of the Social and Environmental Impact Assessment (SEIAs) for the 220MW Korangi Capacity Enhancement Project and for the 575MW Bin Qasim Capacity Enhancement Project, including: <u>Air Emissions:</u> • Korangi Expansion – Stack height of 30m, Water injection to control NO_x emission below 103 mg/Nm³ or about 50ppm (at 15%O₂) • Bin Qasim Expansion – Stack height of 150 ft (about 46m), Dry Low NO_x Combustor to achieve 9ppm (at 15%O₂) on gas, and water injection to achieve 42 ppm (at 15%O₂) <u>Thermal Effluent:</u> • Design cooling water intake structure to minimize entrainment and impingement of marine organisms including limiting the through slot velocities of the screen to less than 0.5 feet per second. <u>Wastewater Treatment:</u> • Install wastewater treatment to ensure that liquid effluents from the expansion projects will meet the effluent limits provided in the Thermal Power: Guidelines for New Plants, World Bank Group Pollution Prevention and Abatement Handbook 1998 including: TSS 50 mg/l, Oil and grease 10 mg/l, Total residual chlorine 0.2 mg/l, Chromium (total) 0.5 mg/l, Copper 0.5 mg/l, Iron 1.0 mg/l, Zinc 1.0 mg/l, Temperature increase = 3 Celsius at the edge of the zone where initial mixing and dilution take place, and pH 6 – 9.	Update with concrete specifications by April 30, 2007: Implementation according during the construction and operational phase.
6	Make operable the Continuous Emission Monitoring system (CEMS) installed at Bin Qasim Thermal Power Station	By December 31, 2007
7	Prepare and Implement KESC's Community Development Plan for communities identified in the SEIAs of the Korangi Expansion Project and Bin Qasim Expansion Project	Preparation by June 30, 2006 Implementation annually.

ⁱ Action Plan was prepared as part of IFC's consideration of providing finance to KESC to support KESC's three year (July 2006 – June 2009) capital investment program, with an objective to achieve KESC's operation in accordance with the relevant Pakistan environmental, health and safety regulations and standards, IFC Performance Standards on Social & Environmental Sustainability, and the relevant IFC Environmental, Health and Safety (EHS) Guidelines including: (a) Thermal Power: Guidelines for New Plants, World Bank Group's Pollution Prevention and Abatement Handbook 1998, (b) IFC EHS Guidelines for Electric Power Transmission and Distribution, July 1, 1998, (c) IFC Environmental and Social Guidelines for Occupational Health and Safety, June 24, 2003, (d) IFC EHS Guidelines for Polychlorinated Biphenyls (PCBs), July 1998, and (e) IFC EHS Guidelines, Hazardous Waste Materials Management Guidelines, December 2001.

ⁱⁱ "Environmental Monitoring, Karachi Electric Supply Corporation Limited: 1- Bin Qasim Thermal Power Station, 2- Korangi Thermal Power Station, 3- Korangi Town Gas Turbine Power Station, 4- S.I.T.E. Gas Turbine Power Station", prepared by ECTECH – Environment Consultant, dated May 2006