APPENDIX B – Framework for Demand Side Management in the Philippines

FRAMEWORK FOR DEMAND-SIDE MANAGEMENT IN THE PHILIPPINES

SECTION 1. ***Definitions***.- Unless otherwise clear from the context, as used in this framework:

(a) "Capital investment costs" means expenses associated with capital improvements, including planning, the acquisition and development of land, the design and construction of new facilities, the making of renovations or additions to existing facilities, the construction of built-in equipment, and consultant and staff services in such planning, design, and construction. Capital investment costs for a program are the sum of the program's capital improvement project costs;

(b) "Costs" means the full and life cycle expenses of DSM option;

(c) "Cost categories" means the major types of expenses including research and development costs, investment costs, and operating and maintenance costs;

(d) "Cost elements" means the major subdivisions of a cost category. For the category "investment costs," it includes capital investment costs, initial equipment and furnishing costs, and initial education and training costs. For the categories "research and development costs" and "operating and maintenance costs," it includes labor costs, fuel costs, materials and supplies costs, and other current expenses;

(e) "Demand-side management" or "DSM" means the planning, implementation, and evaluation by the electric utilities' of their activities designed to influence customer use of electricity that produce the desired changes in the timing and/or level of electricity demand. DSM includes only activities that involve deliberate intervention by electric utilities to alter demand and/or energy consumption;

(f) "Demand-side management programs" or "DSM programs" means programs designed to influence utility customer uses of energy to produce the desired changes in demand. It includes load management, efficiency resource programs and conservation;

(g) "Demand-side measure" means any hardware, equipment or practice which is installed or instituted for energy efficiency or energy management purposes;

(h) "DSM optimization" means the process of selection and evaluation of DSM options that can achieve the highest level of effectiveness;

(i) "Demand-side resource" means a resource that manages the demand for end-use efficiency improvement for electrical power or energy by applying demand-side programs to implement one (1) or more demand-side measures;

(j) "Effectiveness measure" means the criterion for measuring the degree of success of the end result;

(k) "Electric utilities" refers to the electric cooperatives and government-owned or privately-owned electric suppliers whose rates are fixed by the Energy Regulatory Board (ERB), such as, but not limited to, the National Power Corporation, Rural Electric Cooperatives, and the Private Distribution Utilities;

(l) "End-use" means the light, heat, cooling, refrigeration, motor drive, microwave energy, video or audio signal, computer processing, electrolytic process, or other useful work produced by an equipment using electricity;

(m) "Expensing" means the inclusion of costs that are passed on to customers as they are incurred, without earning any explicit profit or return;

(n) "External benefits" means external economies - benefits to or positive impacts on the activities of entities outside a utility and its ratepayers. External benefits include environmental, cultural, and general economic benefits;

(o) "External costs" means external diseconomies - costs to or negative impacts on the activities of entities outside a utility and its ratepayers. External costs include environmental, cultural, and general economic costs;

(p) "Full cost" means the total cost of a program, system, or capability, including research and development costs, capital investment costs, and operating and maintenance costs;

(q) "Investment costs" means the one-time costs beyond the development phase to introduce a new system, program, or capability into use. It includes capital investment costs, initial equipment acquisition costs, and initial education and training costs;

(r) "Life cycle costs" means the total cost impact over the life of a DSM program. Life cycle costs include research and development cost, investment cost (the one-time cost of instituting the program), and operating and maintenance (O&M) cost;

(s) "Net revenue loss" means the lost contribution to fixed cost recovery as a result of not having to generate the unsold energy associated with utility DSM programs;

(t) "Objective" means a statement of the end result, product, or condition desired, for the accomplishment of which a course of action is taken;

(u) "Operating and maintenance costs" or "O & M costs" means recurring costs of operating, supporting, and maintaining authorized programs, including costs for labor, fuel, materials and supplies, and other current expenses;

(v) "Participant impact" means the economic benefits received by the participants in demand-side management program in terms of the costs borne and other benefits;

(w) "Program size" means the magnitude of a program, to include the number of persons serviced by the program, the amount of commodity, the time delays, the volume of service in relation to population or area, etc.;

(x) "Ratebasing" means the inclusion of all costs that are entitled to return;

(y) "Ratepayer impact" means the effect on ratepayers in terms of the utility rates that ratepayers must pay;

(z) "Research and development costs" means expenses associated with the development of a new system, program, or capability to the point where it is ready for introduction into operational use. It includes the costs of research, planning, and testing (including the prototypes and their testing) and evaluation;

(aa) "Societal cost" means the total direct and indirect costs to society as a whole;

(bb) "Societal cost-benefit assessment" means an assessment of the costs and benefits to society as a whole;

(cc) "Supply-side options" means options designed to supply power. It includes renewable energy such as biomass, solar, wind, geothermal or hydro, and also means by product materials that, but for their use as a source of energy, would be considered waste;

(dd) "Sustainable development" means development that is economically-, socially-, and ecologically-sustainable which is seen in a wholistic manner where the linkages among economic, social, ecological, and all other development dimensions are clear.

(ee) "Total resource cost" means all expenses of the program incurred by the participant and the utility costs;

(ff) "Traditional cost-of-service regulation" means the return-on-rate-base regulation;

(gg) "Utility cost" means the cost to the utility (including the cost to ratepayers), excluding costs incurred by participants in a demand-side management program; and

(hh) "Utility cost-benefit assessment" means an assessment of the costs and benefits to the utility.

SEC. 2. ***DSM Goals***.- The following are the goals of DSM**:**

(a) To increase efficiency in the generation, transmission and distribution of electricity and defer construction of power generation plants which would otherwise contribute further to environmental degradation that will hamper the attainment of sustainable development;

(b) To offer the utility a set of alternatives for optimizing resources and providing flexible options for future business that will reduce the utility's operating costs and increase its cost-competitiveness; and

(c) To induce customers/consumers of electricity to adopt measures to effect changes in energy consumption and utility load shape in a most efficient and cost-effective manner.

SEC. 3. ***DSM Policies and Principles***.- The following are the principles of DSM:

(a) The development and implementation of DSM plans shall be the responsibility of each utility;

(b) DSM plans shall conform to national and regional environmental, health, and safety laws and regulations;

(c) DSM plans shall be developed upon consideration and analyses of the costs, effectiveness, and benefits of all appropriate, available, and feasible demand-side options;

(d) DSM plans shall give consideration to the plans' impacts upon the utility's consumers, the environment, culture, community lifestyles, the national and regional economy, and society;

(e) DSM plans shall take into consideration the utility's financial integrity, size, and physical capability;

(f) DSM planning shall be an open and informal public process. Opportunities shall be provided for participation by the public and governmental agencies in the development and review of DSM plans;

(g) The utility shall be entitled to recover all appropriate and reasonable DSM planning and implementation costs. In addition, existing disincentives shall be removed through the use of revenue-based regulation or adjustments that allow recovery of net revenue losses due to DSM programs. Also, DSM targets will be established and incentives shall be established to encourage and reward aggressive utility pursuit of DSM programs. Incentive mechanisms shall be structured so that investments in suitable and effective DSM programs shall be at least as attractive to the utility as investments in supply-side options; and

(h) The class of customers which benefits from the DSM program shall pay the relevant costs thereof.

SEC. 4. ***Definition of Roles.-*** The Department of Energy, the Energy Regulatory Board, the utilities, and the consumers of electricity shall have the following roles:

(a) Role of the Department of Energy. - The Department of Energy (DOE) shall have the following role as prescribed in DOE Circular No. 95-08-007, as amended by DOE Circular No. 95-11-011:

(i) Initiate and conduct the testing of all electrical appliances and equipment for household and office use to determine their energy efficiency ratings;

(ii) Determine the appropriate minimum energy efficiency standards for all electric appliances/equipment manufactured in or imported into the country;

(iii) Work together with or recommend to the Bureau of Product Standards to enforce or make these energy efficiency standards mandatory;

(iv) Act as a conduit, where government involvement is necessary, for grants and/or soft loans to energy service companies and/or electric distribution utilities for the study and/or implementation of DSM;

(v) Initiate and/or coordinate foreign and local training courses on DSM for both private and public sector electric utilities, energy service companies, non-government organizations, and other players in the industry; and

(vi) Monitor and compile DSM efforts and activities for the purpose of creating a DSM databank for inclusion in the over-all energy plan of the country.

(b) Role of the Energy Regulatory Board. - The Energy Regulatory Board (ERB) shall:

(i) Develop and implement a regulatory framework to enjoin electric utilities to invest in DSM projects;

(ii) Adopt other appropriate rate-making methodologies so that utilities are provided economic incentives for investing in DSM programs; and

(iii) Periodically monitor and evaluate DSM programs.

(c) Role of Utilities. - Each utility shall:

(i) Be responsible for developing a DSM plan or plans. Electric utilities shall be free to set their DSM goals and choose which DSM load shape objective is most appropriate for their specific circumstances;

(ii) Prepare and submit to ERB for approval the utility's DSM plan and program implementation schedule at the time or times specified in this framework;

(iii) Execute ERB's approved plan in accordance with the program implementation schedule; and

(iv) Annually examine and evaluate its achievements in attaining its objectives and update its plans when deemed necessary.

d. Role of Consumers of Electricity. The consumers of electricity shall:

(i) Provide inputs in the planning, implementation, monitoring and evaluation of DSM plans;

(ii) Assist in the conduct of research, information, education and communications activities, resource mobilization and other efforts in support of DSM; and

(iii) Support viable DSM plans through appropriate energy conservation measures.

SEC. 5. ***DSM Plan Review And Approval Process***. **-** DSM plans shall be reviewed and approved in accordance with the following procedures:

(a) The Planning Cycle. - Each utility shall:

(i) Submit within one (1) year from the effectivity of this regulatory framework its initial DSM plan and implementation schedule for ERB approval. Such plan shall have a time horizon of not less than five (5) years; and

(ii) Conduct at least once every three (3) years a major review and an annual update of its DSM plan and implementation schedule and revise the same, if necessary. Such revised plan and implementation schedule shall likewise be submitted for ERB approval.

(b) Submissions of requirements and procedures. - Each of the ten largest utilities in terms of peak capacity for the most recent calendar year shall submit to the Energy Regulatory Commission its DSM plan, program implementation schedule, and annual evaluations as set forth in subsection (i) below. All other utilities may either submit a DSM plan in substantial conformance with the

requirements set forth below or may submit a standard DSM plan described in subsection (iv) . Any utility failing to submit a DSM plan will be required to adopt and implement a Default Plan described in section (v).

(i) DSM Plan. - In the submission of its DSM plan, the utility shall:

(1) Include a full and detailed description of (a) the needs identified; (b) the forecasts made; (c) the assumptions underlying the forecasts; (d) the objectives to be attained by the plan; (e) the measures by which achievement of the objectives is to be assessed; (f) the DSM options included in the plan; (g) the assumptions underlying the plan; (h) the total program costs and benefits on an annual and net present value basis; (i) the expected impact of the plan on demand and energy; (j) the expected timetable or periodic level of achievement of objectives; (k) the potential impact of the plan on rates and consumer bills; (l) the plan's external costs and benefits; (m) the relative sensitivity of the plan to changes in assumptions and other conditions;

(2) File with the DSM plan a full and detailed description of the analysis or analyses upon which the plan is based. The utility shall fully describe, among other things, (a) the data (and the source of the data) upon which needs were identified and forecasts made; (b) the methodologies used in forecasting; (c) the various objectives and measures of assessing attainment of objectives that have been considered, but rejected, and the reasons for rejecting any objective or measure; (d) the DSM options that have been identified, but screened out and not considered and the reasons for their rejection; (e) the assumptions and the basis of the assumptions, the risks and uncertainties, the costs, effectiveness, and benefits (including external costs and benefits), and the impacts on demand, rates, consumer bills, and consumer energy uses associated with each DSM option or mix of options that was considered; (f) the comparisons of the cost, effectiveness, and benefit tradeoffs and optimization made of the options; (g) the models used in the comparisons, tradeoffs, and optimization; (h) the criteria used in any ranking of options; and (i) the sensitivity analyses conducted for the options; and

(3) Write the DSM plan simply and clearly and, to the extent possible, in non-technical language. Charts, graphs, and other visual devices may be utilized to aid in understanding its plan and

the analyses made by the utility. The utility shall provide an executive summary of the plan and of the analyses and appropriately index its submissions.

(ii) Program Implementation Schedule. - In the submission of its program implementation schedule, the utility shall:

(1) Include for each year: (a) the programs or phases of programs to be implemented in the year; (b) the expected level of achievement of objectives; (c) the expected size of the target group or level of penetration of any DSM program; and (d) the expenditures, by cost categories and cost elements, required to be made by the utility to support implementation of each program or phase of a program;

(2) File a full and detailed description of the analysis upon which the schedule is based, fully describing among other things: (a) the steps required to realize and implement the DSM programs included in the schedule; (b) how the target groups were selected and how the program penetration for DSM programs and the expected levels of effectiveness in achieving DSM objectives were derived; and (c) the expected annual effects of the program implementation on the utility and its system, the ratepayers, the environment, public health and safety, cultural interests, the national and regional economy, and society in general; and

(3) Include its proposals on cost and revenue loss recovery and incentives, as appropriate.

(iii) Annual Evaluation.- In its annual evaluation, the utility shall:

(1) Include a determination of whether the forecasts and assumptions upon which its DSM plan and its program implementation schedule are based are still valid;

(2) Include for each program or phase of program contained in the program implementation schedule for the immediately preceding year a comparison of: (a) the expenditures anticipated to be made and the expenditures actually made, by cost categories and cost elements; (b) the level of achievement of objectives anticipated and the level actually attained; (c) the target group size or level of penetration anticipated for each DSM program and the

size or level actually realized; and (d) the effects of program implementation anticipated and the effects actually experienced;

(3) Provide an assessment of all substantial differences between original estimates and actual experience and of what the actual experience portends for the future; and

(4) Submit a revised program implementation plan that drops the immediately preceding year from the schedule and includes a new year. The program implementation plan shall always reflect a five-year time span.

(iv) Standard DSM Plan –Utilities other than the ten largest utilities in terms of peak capacity for the most recent calendar year may submit a Standard DSM Plan that will be developed collaboratively. The Standard DSM plans shall:

(1) Include a list of standard DSM programs that are generally cost effective under the circumstances faced by small utilities;

(2) Include a standard DSM cost recovery plan reflecting the estimated cost of each standard DSM program plus utility specific net lost revenues;

(3) Include a standard program evaluation plan.

(v) Default DSM Plan – Any Utility that fails to submit a DSM plan, including a Standard DSM Plan pursuant to subsection (iv) above, will be required to adopt and implement a Default DSM Plan approved by the ERC. The Default DSM Plan shall take into account the size and capability of the utility and the DSM programs that are likely to be cost effective.

(c) Public Hearings. - In the development and approval of DSM plans and programs:

(i) Each utility *shall* conduct public fora and consultations at the various, discrete phases of the planning process for the purpose of securing inputs from the public; and

(ii) The ERB shall conduct public hearings for the purpose of securing public inputs, including acceptability if possible, of each utility's proposal. ERB may also conduct such informal public meetings, as it deems advisable.

(d) Revision or Amendment of DSM Plans and/or Program Implementation Schedule. - The utility may, at any time, as a result of its annual evaluation or change in conditions, circumstances, or assumptions, revise or amend its DSM plan or its program implementation schedule. All revisions and amendments shall conform to the appropriate requirements enumerated in Section 5 (b) hereof.

SEC. 6. ***DSM Plan Guidelines.*** **-** In the development of DSM plans the ten largest utilities in terms of peak capacity for the most recent calendar year, the following guidelines shall be observed:

(a) Objectives

(i) The utility may specify any utility-specific objective that it seeks to achieve through its DSM plan; and

(ii) ERB may, by order, specify other objectives for the utility.

(b) Effectiveness Measures

(i) The utility shall specify the measures by which attainment of the objective or objectives is to be determined.

(ii) Where direct, quantifiable measures are not available, the utility may utilize proxy measures.

(c) DSM Options. - The utility shall initially identify all feasible demand-side measures. A measure may be deemed feasible where its life cycle costs are less than its benefits under the societal cost-benefit assessment.

(d) Forecast

(i) Each utility shall develop a range of forecasts of the amount of energy the consumers will need over the planning horizon. It shall develop forecasts for multiple scenarios that are necessary or appropriate

in the development of its DSM plan. Among the scenarios are the base case scenario (a scenario based on the most likely assumptions), a high-growth scenario, and a low-growth scenario;

(ii) Each forecast shall identify the significant demand and use determinants; describe the data, the sources of the data, the assumptions (including assumptions about fuel prices, energy prices, economic conditions, demographics, population growth, technological improvements, and end-use), and the analysis upon which the forecast is based; indicate the relative sensitivity of the forecast result to changes in assumptions and varying conditions; and describe the procedures, methodologies, and models used in the forecast, together with the rationale underlying the use of such procedures, methodologies, and models;

(iii) Among the data to be considered are historical data on energy sales, peak demand, system load factor, system peaks, and such other data of sufficient duration to provide a reasonable basis for the utility's estimates of future demand;

(iv) As feasible and appropriate, the forecast shall be by the system as a whole and by customer classes; and

(v) The utility shall use all reasonable methodologies in forecasting, including, as practicable and economically feasible, the disaggregated end-use methodology.

(e) Data Collection

(i) For every feasible DSM option, each utility shall determine its life cycle costs and benefits and its potential level of achievement of objectives. It shall also identify each option's total costs and benefits - the costs to the utility and its ratepayers and the indirect, including external (spillover), costs and benefits. External costs and benefits include the cost and benefit impact on the environment, people's lifestyle and culture, and the national and regional economy;

(ii) To the extent helpful in analysis, each utility shall distinguish between fixed costs and variable costs and between sunk costs and incremental costs, and identify any opportunity costs; and

(iii) The costs and benefits shall, to the extent possible and feasible, be (1) quantified and (2) expressed in monetary terms. When it is neither possible nor feasible to quantify any cost or benefit, the same shall be qualitatively measured. The methodology used in quantifying or in qualitatively stating costs and benefits shall be described in detail.

(f) Assumptions; Risks; Uncertainties

(i) The utility shall identify the assumptions underlying any DSM option or the cost or benefit of any option or any analysis performed;

(ii) The utility shall also identify the risks and uncertainties associated with each DSM option; and

(iii) The utility shall further identify any technological limitations, infrastructural constraints, legal and governmental policy requirements, and other constraints that impact on any option or the utility's analysis.

(g) Models

(i) The utility may utilize any reasonable model or models in comparing DSM options and otherwise in analyzing the relative values of the various options or combinations of options; and

(ii) Each model used shall be fully described and documented.

(h) Analyses

(i) The utility shall conduct cost-benefit and cost-effectiveness analyses to compare and weigh the various options;

(ii) The utility shall conduct such analyses from varying perspectives, including the utility cost perspective, the ratepayer impact perspective, the participant impact perspective, the total resource cost perspective, and the societal cost perspective;

(iii) The utility shall analyze all options on a consistent and comparable basis. It shall give the costs, effectiveness, and benefits of DSM options consideration equal to that given to the costs, effectiveness, and benefits of supply-side options. The utility may use any reasonable and appropriate means to assure that such equal consideration is given;

(iv) The utility shall compare the options on a present value basis. For this purpose, the utility shall discount the estimated annual costs (and benefits, as appropriate) at an appropriate rate. The utility shall fully explain the rationale for its choice of the discount rate; and

(v) The utility may rank, as appropriate, the various options upon such reasonable criterion as it may establish.

(i) DSM Optimization

(i) Based on its analyses, each utility shall select those DSM options that can achieve the level of effectiveness or the level of benefits specified in the objectives. It shall also identify those DSM options that achieve the highest level of effectiveness or level of benefits at various levels of cost;

(ii) Each utility shall develop a number of alternative plans, each representing optimization from various perspectives including the perspective of the utility, the ratepayers, the non-participants, and society. It shall also develop alternate plans to meet the needs identified by each demand forecast scenario;

(iii) For every plan, each utility shall identify the revenue requirements on a present value and annual basis. It shall note the risks and uncertainties associated with the plan. It shall also describe the plan's impact on rates, customer energy use, customer bills, and the utility system. It shall also describe the plan's impact on external elements - the environment, people's lifestyle and culture, the national and regional economy, and society in general; and

(iv) Each utility shall rank the various plans, based on such criterion as it may establish. It shall designate one of these plans as its preferred plan and submit this to ERB as its DSM plan.

(j) Sensitivity Analysis. - Each utility shall subject its selection of DSM options to sensitivity analysis by altering assumptions and other parameters.

SEC**.** 7. ***Cost Recovery and Financial Incentives***. - To encourage utilities to invest in DSM programs, cost recovery, lost revenues, and financial incentives shall be provided for the ten largest utilities in terms of peak capacity for the most recent calendar year as set forth in subsections (a) through (d) below. For other Utilities DSM program cost recovery, lost revenues, and incentives shall be part of the standard or default DSM plans described in Section 5.

(a) DSM Program Costs - An electric (whether electric cooperative, government-owned or privately-owned) utility shall be entitled to recover its DSM planning and implementation costs that are reasonably incurred, including the costs of planning and implementing pilot and full-scale DSM programs, as determined by the ERB. The cost recovery may be had through ratebasing and/or expensing, using any of the following mechanisms:

(i) Recovery in distribution rates - the inclusion of costs in the utility's distribution rates an amount based on historic or projected DSM costs during each rate case. A balancing account may be appropriate in this instance to reconcile, with interest, the electric utility's recovered expenditures with its actual expenditures. It may also be appropriate to consider the electric utility's under-expenditure of authorized cost to limit recovery, unless program objectives are met or exceeded.

(ii) Automatic adjustment clause - the recovery/refund of costs incurred between rate cases in excess/below the baseline DSM-related costs that are included in the electric utility's basic rates.

(b) Revenue loss – DSM programs may result in net lost revenues. Utilities shall be entitled to recover the net revenue loss sustained by it as a result of the implementation of full-scale or pilot DSM programs sponsored or instituted by the electric utility using any of the following mechanisms

(i) Revenue-based regulation – The utility may propose an alternative regulation incentive plan under which utility revenues are not subject to variations in sales volumes. Proposals shall meet the following standards:

i. The plan shall be fair to consumers and the utility; and

ii. The plan shall provide strong cost-cutting and efficiency incentives.

(ii) Net lost revenue adjustments – The utility may propose a net lost revenue adjustment under which rates may be adjusted to recover lost contribution to fixed costs resulting from the implementation of DSM programs

Utilities that invest 1% or more of their gross electric revenues in cost-effective DSM programs in any calendar year may request approval of a DSM incentive plan to encourage the continued implementation of full-scale DSM programs, except that the 1% limit shall not apply during the period 2001 though 2003.

(i) The incentives may take any form approved by the ERB, including but not limited to:

(1) Granting the electric utility a percentage share of the gross or net benefits attributable to DSM programs (shared savings).

(2) Granting the electric utility a percentage of certain specific expenditures it makes in DSM programs (mark-up).

(3) Allowing the electric utility to earn a greater than normal return on rate-based DSM expenditures (rate base bonus) but not to exceed 12%.

(ii) ERB shall determine whether the electric utility shall be provided with incentives and the form of such incentives, if any, when specific DSM programs are submitted to it for approval. The electric utility may propose incentive forms for a particular program, based on the particular attributes of the program and the results to be attained.

(iii) ERB may terminate any and all incentives whenever circumstances or conditions warrant such termination.

(d) ERB shall determine the appropriate mechanism for the recovery of costs associated with DSM programs, lost revenues, and incentives when DSM plans are submitted for its approval.

SEC. 8. ***Pilot Demand-Side Management Programs***. - DSM programs may be pilot-tested to:

(a) Ascertain whether a given program is cost-effective - whether it will have the penetration and will achieve accomplishment of the utility's objectives as originally believed; and

(b) Determine whether the program design and configuration (including how it is managed and promoted) are such as to permit implementation of the program as efficiently and effectively as desired.

However, a utility may implement on a full-scale basis (without pilot testing) any DSM program that has is reasonably likely to be cost-effective.

For each program, the utility shall clearly articulate the parameters of the program, the objectives to be attained by the program, the expected level of achievement of the objectives, the measures by which the attainment of the objectives is to be assessed, the data to be gathered to assist in the evaluation of the pilot program, and the expenditure it proposes to make by appropriate cost components.

All proposed pilot DSM programs shall be subject to ERB approval.

SEC. 9. ***Effectivity.*** - This framework shall take effect fifteen (15) days after its complete publication in at least two (2) national newspapers of general circulation.