Appendix D - Economic Efficiency Analysis

Present Net Value (PNV) is the criterion used to maximize net benefits in planning benchmarks and alternatives for the Klamath National Forest. For each alternative, PNV is the difference between the discounted value (benefits) of all priced outputs and the total discounted costs of managing the planning area.

PNV calculations consider only the benefits for those outputs that are or can be exchanged in the market place. On the Forest, these include the value of forage, timber stumpage, commercial fish in streams, miscellaneous harvested products, increased water flow and all recreation visitor days including those for wildlife, fishing and wilderness experiences. Costs are all Forest Service fixed and variable costs associated with managing the planning area, regardless of whether the costs are incurred for the production of either priced or non-priced outputs, or as overhead expenses for general maintenance of the organization.

The alternatives are designed and analyzed to achieve the goals and objectives for priced outputs. This is done in a manner that achieves the greatest value of priced outputs in relation to their cost, while meeting all specified constraints and objectives for non-priced outputs. The alternatives are also designed to achieve the specified non-priced outputs and to meet constraints at the least cost. Thus, the PNV of each alternative estimates the value of the maximum attainable net benefits of priced outputs. It is the value of priced benefits realized in excess of all the Forest Service costs of producing priced outputs and non-priced outputs and meeting management constraints. PNV, therefore, is an estimate of the market value of the current forest resources after all costs of producing outputs and meeting constraints have been subtracted from the value of the expected flow of priced outputs.

Net Public Benefit is the overall value to the Nation of all outputs and positive effects (benefits), less all the associated Forest Service inputs and negative effects (costs) for producing those primary benefits, whether they can be quantitatively valued or not. Net public benefits cannot be expressed as a numeric quantity because it includes qualitatively valued non-priced outputs. Thus, net public benefits conceptually are the sum of the PNV plus the full value of all non-priced outputs. The full value of non-priced benefits is used because their cost of production has been accounted for in PNV.

The non-priced benefits included here are: (1) outputs such as T&E species maintenance or enhancement; (2) natural and scientific areas; (3) cultural resource areas, such as Native American religious sites and historical or anthropological sites; (4) visual quality and (5) diversity objectives or air quality in excess of minimum management requirements. Minimum management requirements in this context are standards that must be met in the production of any or all outputs from the Forest. The minimum level, therefore, is a cost of production in the multiple use context.

Secondary or induced benefits and costs also result from National Forest management. These impacts can be local, Regional or National in scope. Some distributive effects, such as changes in consumer prices or taxpayer costs, have National level impacts. Other effects, such as induced jobs and income, payments to communities in lieu of taxes or benefits to specific users of National Forest outputs who pay no fees or pay less than the price of the valued outputs, are more local or Regional in nature. All these are distributive welfare effects of National Forest production.

The foregoing distributive effects and impacts have been the object of National policy issues and discussions in both the Administration and the Congress. Since they are distributive effects, they are more related to questions of equity (for example, who pays and who benefits) rather than efficiency. They are not assessed in the context of the efficiency criteria associated with the PNV and net public benefit concepts.

EIS Presentation

The methodology, background and results of the economic efficiency analysis conducted during the planning process is presented throughout the EIS. As a result, all of the major sections of this document, including those listed below, must be read in order to get a complete picture of the analysis conducted.

Context	Reference
Discussion of how economic efficiency analysis was used in developing alternatives.	Chapter 2, Description of alternatives.
Outputs, total cost and PNV for each of the benchmarks.	Chapter 2, Description of benchmarks.

Context	Reference
Results of the constraint analysis and a comparison of the alternatives in terms of PNV. This is the most comprehensive summary of the analysis results in the EIS.	Chapter 2, Comparison of alternatives.
Background information on economic conditions and the resource supply-demand situation for the Forest.	Chapter 3.
How and why PNV of the alternatives differs.	Chapter 4.
Technical details of the modeling and analysis process, including a description of basic estimates and assumptions on benefits, costs and interest rates.	Appendix B.