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INCOME DISTRIBUTION IMPACTS OF CHANGES IN
WESTERN AREA POWER ADMINISTRATION ELECTRICITY PRICES

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I. INTRODUCTION

The purpose of this report is to present the methodology and results of an analysis of income distribution impacts associated with changes in the Western Area Power Administration (WAPA) marketing program. The focus will be on the distribution of personal income across eleven brackets in each of nine sub-regions of the WAPA market area. Moreover, these results will be translated into an assessment of the number of people who stand to gain or lose as a result of the policies and the size of these income changes.

A. Background on Distributional Analysis

Most economic impact analyses are performed at an aggregate level. The results are typically presented in terms of net benefits, or a listing of changes in employment, output, income, or prices. What is neglected is the distribution of impacts across the affected population.

These distributional impacts are important for several reasons. First, there is the normative (judgmental) issue of distributional justice, or equity. This addresses concerns about income disparities in general, or whether the poor, or any other group, are shouldering a disproportionate share of any burden or are failing to share significantly in any gain.

There is, however, an important positive (non-judgmental) use of distributional analysis. Knowing the number of people who will gain and the number who will lose is useful to policy-makers in gauging public support in general, and in identifying pockets of resistance to policies in particular. Ordinary impact models are generally incapable of analyzing these important considerations.

There has been an increasing interest in distributional impact analysis over the past twenty years (see, e.g., Weiskoff, 1976; Golladay and Haveman, 1977; Gianessi and Peskin, 1980). However,

few analyses have been performed at the regional level, due mainly to lack of data. Fortunately, this problem has been overcome in recent years by the availability of more primary data and the advancement of data reduction, or non-survey, techniques. One major example is the multisector income distribution model developed by Rose et al. (1988). This model is based on a set of income accounts disaggregated by sector and income bracket of recipient, based almost entirely on primary data at the national level. Later work by Rose and Beaumont (1989) extended the analysis to a disaggregation of consumption by income bracket and sector as well. This represents a complete (closed-loop) extended input-output model, or, alternatively, a simple version of a social accounting matrix (SAM). The methodology was extended to the regionalization of this model using various combinations of survey and non-survey data (see Rose et al., 1988; Rose and Beaumont, 1988; and Rose et al., 1989).

B. Western Area Power Administration

WAPA is a marketing enterprise that annually sells over 10,000 megawatts of power from 51 hydroelectric installations, as well as over 500 megawatts from a coal-fired plant. The company services over 600 wholesale customers in 15 states. Annual gross operating revenues in recent years have exceeded \$600 million (see, e.g., WAPA, 1991).

Note that WAPA is a quasi-governmental enterprise. Its capital stock, consisting mainly of transmission lines and substations, are owned by, or were built using, borrowed funds from the federal government. The hydroelectric facilities that actually generate electricity marketed by WAPA are operated by various other federal government agencies.

The WAPA service area covers the American Southwest, the Rocky Mountain States, and Plains States, ranging from California to Minnesota, Iowa, and Texas. The area analyzed in this report is a bit smaller and includes only a portion of the Western Plains States as far east as Central Nebraska. We have divided this service area into nine subregions as follows:

Arizona Metro	Wyoming Metro
Colorado Metro	High Plains
Nevada Metro	Rocky Mountain
New Mexico Metro	Great Basin
Utah Metro	

These subregions clearly distinguish the urban and rural portions of the marketing area. A list of individual counties included in each of the aforementioned regions is presented in Appendix A.

This report is an input into the economic portion of an environmental impact statement (EIS) on changes in marketing programs in the Salt Lake City Integrated Projects service area of WAPA. The EIS is a response to legal suits brought against WAPA by Utah Power and Light Company and the National Wildlife Federation. Among the concerns expressed are whether the revised marketing program will significantly increase commitments for seasonal and overall capacity or output. This could have far-reaching implications for electricity prices and general economic welfare, as well as factors affected by stream flows, such as fish population and fishing- and boating-related recreation.

II. DISTRIBUTIONAL IMPACT ANALYSIS

The methodological framework of this report is input-output (I-O) analysis, a versatile tool developed by Nobel-laureate Wassily Leontief. In its most basic form, I-O is a linear model of all purchases and sales between sectors of an economy, based on technological requirements of production. Decades of methodological advances have extended I-O far beyond this basic form and have established it as the most widely-used tool of regional impact analysis (see Leontief, 1986; Miller and Blair, 1985; and Rose and Miernyk, 1989).

In the mid-1970s, several researchers independently formulated extended input-output income distribution models (see Miyazawa 1976; Golladay and Haveman 1976; Paukert, Skolka, and Matton 1976; and Rose 1977). The major motivation of these models was the disaggregation of the payments sector by income class of recipient, thus transforming the typical value-added row into a matrix. Each element of the matrix is a fixed coefficient, v_{ki} , that represents the amount of income going to recipients in income bracket k per unit of gross output of good i .

A. Normative Analysis

An open-loop income distribution model can be defined as one in which there are direct and indirect impacts on income distribution, but no feedback (induced) effects through consumption demand (differentiated according to income or otherwise). A typical version (e.g., Weiskoff 1976; Rose 1977) is illustrated below:

The model is one of simultaneous determination of income generation and distribution, in which the vector of income by class is given by:

$$Y = VX \tag{1}$$

where

- A = the $n \times n$ matrix of technical coefficients $a_{ij} = x_{ij} / X_j$,
- V = the $m \times n$ matrix of income coefficients $v_{ki} = y_{ki} / X_i$,
- X_j = the gross output of industry j ,
- F_j = final demand for good j ,
- Y_k = the income of the recipient group k ,
- x_{ij} = the amount of output of industry i used in producing good j ,
- y_{ki} = the amount of income received by group k from industry i .

Since $X = BF$, where $B = (b_{ij}) = (I - A)^{-1}$, the reduced form equation is:

$$Y = VBF \quad (2)$$

A development stimulus, for example, would affect income distribution through a change in final demand, F , and/or the inclusion of a new production sector that would yield an augmented inverse, B^* , of the original transaction table:

$$\Delta Y = VB^* \Delta F \quad (3)$$

A vector representing the distribution of income returns from a unit change in final demand in a given sector, $\Delta f_j = 1$, is given by:

$$\Delta Y_k = \sum_{i=1}^m v_{ki} b_{ij} \quad k = 1 \dots m \quad (4)$$

where the subscript j refers to the sector in which the initial stimulus takes place.

The closed-loop model incorporates the feedback effect of income differentiated consumption. In the prime example, the Miyazawa (1968, 1976) model, income distribution bridges the gap between the Leontief interindustry production process and the Keynesian income propagation process. Changes in the product mix alter the distribution of income, which in turn alters the pattern of consumption, which then further alters the interindustry mix, and so on. Each subsequent round is smaller than the previous one, and thus the end result is some finite multiple of the original income change.

A version of the open-loop model was constructed by Rose et al. (1988), utilizing primary data from the Bureau of Labor Statistics, New York Stock Exchange, and Internal Revenue Service to develop the most comprehensive set of disaggregated income accounts to date. A closed-loop version was constructed by Rose and Beaumont (1989), combining the income distribution matrix noted above and primary data on consumption from the Bureau of Labor Statistics.

Rose et al. (1988) also developed a methodology to regionalize primary accounts data through the use of non-survey based methods. Primary data on wage and salary income, when available at the sub-state level, can be combined with control totals from the Department of Commerce Bureau of

Economic Analysis at the state level and from the U.S. Forest Service IMPLAN Modeling System for the sub-state level.

One of the advantages of our approach to distributional impact analysis is its compatibility with most other modeling approaches. It simply requires from them a scalar or vector representing changes in key economic variables to initiate its estimation of the associated distributional impacts. Alternatively, it can be embedded into a computable general equilibrium (CGE) model, as is currently being undertaken by Weise et al. (1993).*

A result analogous to equation (4) is generated by the closed-loop model as well as the open one. Rose, Nakayama, and Stevens (1982) refer to ΔY_k as the distributional impact vector. A separate impact vector can be obtained for each sector and serves as the basis of the associated Gini coefficient of income changes. The Gini coefficients can then be ranked in the manner of conventional output, employment, and income multipliers to see which sectors yield the most equitable changes in returns.

B. Positive Analysis

Several economic impact indicators are in use, including the equity measure just discussed and the most prevalent of all--the net benefit level emanating from a benefit-cost analysis. The policy-maker might readily base his decisions on overall community considerations such as these, but, in a democracy, he may also wish to weigh how a majority of citizens are affected. This same measure might also be useful to the policy-maker to indicate the extent of public support or opposition to the policy. A way to calculate who gains and who loses in a manner compatible with input-output analysis has been developed by Rose et al. (1988). It centers

*Our methodology has served as a foundation for recent work by others on this topic as well. For example, a recent Ph.D. dissertation at Cornell University by Wernstedt (1991) examined the distributional implications of two water-related policies (strategies to affect fish migration and irrigation-hydropower tradeoffs) in the Columbia River Basin using a refinement of the work by Rose et al. (1988).

on the calculation of an *Individual Impact Matrix* (IIM)--a probability distribution of potential impacts for each member of a given socioeconomic group.*

Let us describe the IIM further with an illustration adapted from Rose et al. (1988). A policy to allow mining in a National Forest, for example, will stimulate mining activity directly and other economic activity in the region indirectly through multiplier effects. It may at the same time cause a decrease in some recreational activity or generate water pollution affecting the entire population of the area. Some of these effects may have to be calculated separately, but the analysis is facilitated if they are translated into dollar terms and eventually combined with income gains. A hypothetical example of an income distribution impact matrix is presented in Table A below for an economy divided into five sectors and five income groups. Keep in mind that the numbers represent the distribution of increments to income, and may differ from the distribution of baseline income. To simplify, we assume an equivalence between these marginal and average distributions in all but one important case (to be discussed below).

The unrepresentative distribution in the leading sector, mining, arises because institutional factors come into play. An increase in economic activity can in general be attained by existing employees working overtime, by hiring additional employees, or by some combination of the two. In the case of a large increase in mining activity, however, the overtime work option may be limited by labor union policy or physical constraints. Thus, the high proportion of returns in mining flowing to the 0 to \$10,000 income group represents exclusive reliance on hiring previously unemployed workers.

*This matrix can also be used by individual citizens to predict how each of them will be affected. The IIM was developed in response to the need for improved information flows to comply with federal mandates (e.g., the Resource Policy Act of 1976) to increase public participation in decisions affecting natural resources on public lands. Note that the IIM does not imply that a citizen's vote is determined by self interest alone. The citizen's utility function might well include his or her own well-being, that of the community as a whole (the net benefit level as a reflection of economic efficiency) and that of some disadvantaged groups (vertical equity). It is ironic that economists, who typically rail against giving much credence to altruistic motivations, so often emphasize the net benefit level and ignore individual utility gains and losses when it comes to empirical analysis.

Table A. HYPOTHETICAL INCOME DISTRIBUTION IMPACT MATRIX
(thousands of dollars)

Income Class of Recipient, <i>k</i>	Sector, <i>j</i>					Total
	Forestry	Mining	Manufacturing	Trade	Service	
0-9,999	50	5,000	500	300	200	6,050
10,000-24,999	200	1,000	1,200	900	700	4,000
25,000-49,999	300	1,000	1,600	1,200	800	4,900
50,000-99,999	400	1,000	400	500	200	2,500
100,000+	50	2,000	300	100	100	2,550
Total income gain	1,000	10,000	4,000	3,000	2,000	20,000
Total externality loss	200	8,000	3,000	600	200	12,000

The last row in Table A represents a hypothetical set of income losses associated with various types of externalities (pollution, disamenities, loss of recreational opportunities) generated in each sector. In order to simplify the example, and because of the difficulty of ascribing, say, air or water pollution damages to any single source, we have not shown the distribution of damages from each sector; it suffices for our purpose to consider an aggregate vector of damages.

As would be the case for any resource-development scenario, our example indicates a differential impact across sectors as well as income groups. An individual's relative gain will depend on his or her association with a given sector as an employee, and possibly with several sectors as a dividend, interest, rent, or royalty earner. Those associated with the focal point of the policy (mining) stand to gain the most, and gains will decline as linkages with the key sector become weaker. Nearly all individuals suffer externality losses (e.g., pollution, congestion, disamenities), and market transmitted losses will take place in those sectors displaced by the development effort (e.g., decreased recreational activity when land is shifted to mining).

In our example, an individual miner may have a good idea of his new employment prospects, but other members of the community may be uninformed about their future, since they are impacted

through indirect economic effects and externalities. The information contained in equation (4) above can be rearranged, however, to provide more insight. The necessary computations begin by calculating the average gain or loss per person in the cell of Table 3 to reveal the range of individual impacts. The range is then split into appropriate "*income change*" categories, r , which become the column dimension of a new matrix, replacing the sector designation, j . We are moving toward grouping together all individuals who receive the same level of gain or loss, regardless of where their payments originate. Moreover, the focus is shifted to impacted individuals rather than total income flows.

This is the basis for our individual impact matrix presented in Table B below. The numbers in parentheses in the body of the table represent the number of individuals, n , in each income class, k , who receive gains or losses

Table B. HYPOTHETICAL INDIVIDUAL IMPACT MATRIX

Income Class of Recipient, k	Net Income Change Class, r				Total
	-999 to 0	0 to 999	1,000 to 4,999	5,000 +	
0-9,999	500 (.50)	200 (.20)	100 (.10)	200 (.20)	1,000 (1.0)
10,000-24,999	750 (.33)	500 (.33)	500 (.22)	250 (.11)	2,250 (1.0)
25,000-49,999	1,400 (.70)	300 (.15)	200 (.10)	100 (.05)	2,000 (1.0)
50,000-99,999	50 (.10)	250 (.50)	100 (.20)	100 (.20)	500 (1.0)
100,000+	0 (.00)	100 (.40)	100 (.40)	50 (.20)	250 (1.0)
Total	2,700 (.45)	1,600 (.27)	1,000 (.17)	700 (.12)	6,000 (1.0)

in each size class, r . We then standardize this matrix by dividing each cell entry in a given row by its corresponding row sum (see the results in parentheses in Table r). Our individual impact matrix, I , is thus:

$$I = \frac{n_{kr}}{n_k} \quad (5)$$

Continuing with our example to illustrate these points, we first observe in Table B that there are a total of 6,000 affected citizens grouped into the same five income classes as before and whose

income changes are grouped into four size classes, one of which is negative. For the lowest income group, for example, the entries in parentheses mean that an individual originally in that group has a 50 percent chance of a gain greater than \$5,000. The two hundred individuals in the first row of column 4 of Table B, who together stand to reap earnings greater than \$5,000 are two hundred formerly unemployed miners now scheduled to earn \$25,000 annually (refer back to the \$5 million gain from mining to the lowest income bracket in table 4). Other gross gains and gross losses are combined in the other entries of the table. In our example, the groups with the highest probability of a loss are those in the lowest and middle-income groups. If a lower income household incurs the same damage as a higher income household, it is more likely to suffer a net loss, because its gross personal income gain has a higher probability of being smaller than that of the higher income household. Our result for the middle-income group is, on the other hand, contrived to illustrate the possibility of a disproportionate share of losses falling on one neighborhood, or subregion.*

To determine how the majority of citizens are affected, or to construct a *Community Impact Index*, one needs only to add up the number of gainers and losers on the bottom row of Table B. The results indicate that 55% of the population will receive net gains. This fact that the majority gain from the policy may seem obvious from the fact that net income gains from Table A are \$8 million (\$20 million-\$12 million). However, there are many public policy examples where net benefits are positive, and, because they are concentrated in the hands of a few, the majority of residents still suffer net losses!

*Note, still another positive distributional measure was developed by Rose et al. (1988). The *Political Articulation Index* assigns weights to the gains and losses in each cell of the IIM to reflect the likelihood that individuals will take part in the public participation process, i.e., articulate their preferences.

III. PROJECT DESIGN AND STRATEGY

A. Rationale for the Modular Approach

Given the complexity of this topic and the potential sensitivity of the results to underlying data and assumptions, we developed a two-pronged strategy:

- (1) to document all data and computations
- (2) to divide the modeling system into modules.

Distributional impact analysis requires a great deal of data, not readily available, or when available, requiring extensive refinement for regional applications. Examples include income returns on bond holdings by economic sector of origin and income bracket of recipient, and even wage and salary distributions by income bracket at the sub-state level.

Moreover, we must consider functional relationships between institutional variables and distributional impacts. These are difficult to predict, especially since they are complex and sensitive to private sector and public sector policy decisions. Examples include the extent of absentee ownership that causes capital-related income to flow out of a region, or the extent to which unions promote job gains for unemployed workers versus overtime work for existing employees. Both of these considerations influence whether income changes are spread over a large portion of a region's population, and, hence, whether a large number of residents will have an incentive to support or oppose a given policy.

These complications call for a modular approach to performing distributional impact analysis. First, this allows us to update separate components as more data become available. For example, the Bureau of the Census hopes to make available this summer Industry/Occupation Matrices for the year 1990. We can thus improve our estimation of this income type separately from the others.

Second, the modular approach facilitates the use of sensitivity analysis where data are not available and where empirical analysis is beyond the scope of this study. For example, in the absence of information on transboundary flows (regional leakages) of capital-related income, we can

explore how sensitive the results are to upper-and lower-bound estimates. Again, this enables us to isolate an important feature of our model for special consideration.

B. Project Scope

Income distribution impacts of environmental policies affecting WAPA can stem from several sources. The most obvious are changes in industrial, commercial, and residential demand for electricity stemming from increases or decreases in the prices of WAPA's product. In addition to these own-price effects, there could be cross-price elasticity effects, i.e., changes in the mix and level of consumer goods and productive inputs. The likelihood of these is heightened somewhat by the fact that electricity is a primary commodity used directly and indirectly in significant amounts in nearly all goods and services, thereby putting pressure on all these prices to change.

Also, changes in the price of hydroelectric power could make electricity generated from fossil fuels more or less attractive and set off a separate chain of multiplier effects. These are likely to move in the opposite direction of WAPA's impacts and with likely different distributional weights. That is, an increase in the price of hydroelectric power will lead to a decrease in the quantity of it demanded, and may lead to some increase in the demand for electricity from other fuel sources. The direct and indirect inputs for these sources differ from hydro, as does the socioeconomic profile of their income recipients.

In this report, we will model only the first of these causal changes--those stemming from direct reductions (increases) in the demand for WAPA's electricity due to its higher (lower) price. These effects are likely to be much greater than those stemming from the third source, since crossover points for hydro and fossil-fired electricity prices are not likely to be reached by the small percentage changes projected to take place. The second source may be significant but is too complex to model in this study.

IV. CONSTRUCTION OF REGIONAL INPUT-OUTPUT TABLES

We utilize the U.S. Forest Service (1993) Impact Analysis for Planning System (IMPLAN) to construct our nine regional I-O tables. IMPLAN consists of a large database and algorithms to compile regional I-O tables and to perform various types of impact analyses. The system can generate I-O tables for any county or county grouping in the U.S., even for regions that transcend state boundaries. We chose the IMPLAN System because it generates the most up-to-date regional I-O tables available and is considered to meet high standards of accuracy (see below).

IMPLAN utilizes data reduction methods to generate the regional I-O tables in a "top-down" approach. That is, a national I-O table is combined with primary (row and column) control totals to generate state I-O tables. These control totals consist primarily of sectoral income, employment, and output levels. The I-O model construction methods are a combination of the "supply-demand pool" and "regional purchase coefficient" techniques, found to be among the most accurate methods in the field (see, e.g., the assessment by Round, 1983). A general overview of the major steps in the model construction algorithm of IMPLAN is presented in Figure 1.*

Inherently, the top-down approach assumes that the production technology of the United States as a whole is a good approximation of the technologies of any region. Some uniqueness is imparted via a bi-proportional matrix (RAS) balancing algorithm at the final stage of regional table construction. The major difference between regional and national coefficients though is the application of the regional purchase coefficients (RPCs), which scale down total technical requirements to regional requirements, i.e., to those inputs that are produced within the region itself.

*The standardization routine in the algorithm refers to generating all tables with the complete 83 sectors, whether the sectors exist in the region or not (in which case row and column columns of zeros are added). This facilitate matrix manipulation, since all tables are equal rank. Note, the addition of a row and columns of zeros does pose a non-singularity problem because it is the (I-A), rather than the A, matrix which is inverted.

FIGURE 1. CREATION OF REGIONAL I-O TABLES

Note that we utilize a two-digit BEA industry version of the regional I-O tables. IMPLAN generates tables at the four-digit BEA level, which includes more than 500 sectors, in order to minimize the cross-hauling problem. The larger matrices are somewhat unwieldy and do not improve the accuracy of income distribution impact analysis significantly, especially since our income distribution matrices are only compiled at the two-digit level. Thus, we perform our computations with a maximum of 83 sectors with one exception: at the two-digit level, electric utilities are grouped into a general utility industry (electricity, gas, water, sanitary services), and we separate out the electricity component since this is the focus of our analysis.

The transactions component of an I-O table for one of the WAPA regions is presented as Table 1A. The payments and final demand quadrants are presented in Table 1B. Both tables are examples of IMPLAN PC version reports (printouts).

TABLE 1A

COLOP SMM 1990 (AGGREGATED)
INTERINDUSTRY TRANSACTIONS

AGGREGATION/LISTER REPORT # 402
5/ 1/93

	1	11	24	26	29	33	37	38	40	45
1	66.71400	.53323	.04585	1.33264	.00000	.00000	.00000	.00000	.00000	.00000
11	2.44705	38.44770	.02207	45.77164	.00179	.00038	.00021	.00024	.00072	.00002
24	.00000	.00000	.00085	.00097	.00000	.00000	.00000	.00000	.00000	.00000
26	2.41278	6.81609	1.60763	.01770	.04990	.00000	.00142	.01314	.00873	.00552
29	.00002	.00048	.00000	.00010	25.69498	.05098	.00040	.00000	.00645	.00062
33	.00000	.00000	.00000	.00000	.00378	.00005	.00000	.00000	.00000	.00000
37	.00192	.01581	.00000	.00000	.00777	.00710	.07883	.00002	.00063	.00013
38	.23084	3.00097	.00545	1.44736	.58624	.08290	.03307	3.63386	.18551	.06641
40	.00017	.01569	.00000	.00445	.00316	.00171	.00299	.00000	.20157	.01720
45	.00059	.00640	.00008	.00032	.03606	.00143	.00011	.00188	.00042	.00245
46	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
55	1.71814	5.32598	.26702	4.77637	3.78755	.45794	.32782	1.61738	.68578	.06359
59	1.91776	.00671	.13341	.00978	.01231	.00051	.00105	.01816	.00329	.00256
108	.00000	.00037	.00000	.00007	.00022	.00000	.00022	.00000	.00000	.00008
110	.00000	.00016	.00000	.00004	.00018	.00000	.00008	.00020	.00016	.00001
117	.00059	.01685	.00009	.00659	.00001	.00000	.00000	.00000	.00000	.00000
125	.00004	.11258	.02766	.31030	.00023	.00003	.00002	.00263	.00005	.00001
133	.00615	.01689	.00001	.00021	.50459	.00021	.01828	.00011	.00007	.00022
141	.00036	.00386	.00000	.00001	.00005	.00000	.00001	.00000	.00000	.00000
143	.00147	.00362	.00010	.00380	.00045	.00026	.00113	.00067	.00008	.00008
148	.00003	.00000	.00001	.00138	.00015	.00002	.00001	.00007	.00005	.00000
154	.00054	.00171	.00008	.00245	.00071	.00009	.00006	.00010	.00022	.00003
160	.00039	.00284	.00001	.00626	.00042	.00003	.00003	.00015	.00011	.00001
164	.00048	1.35375	.00135	.42518	.00501	.00002	.00003	.00346	.01032	.00067
174	.01389	.10486	.00721	2.77820	.28480	.02705	.03023	1.90657	.05767	.00895
187	.19923	5.78726	.03009	5.64884	12.23886	.67674	.25585	.42055	.45275	.08647
191	.00083	.00493	.00007	.00304	.00918	.00049	.00075	.01144	.00232	.00176
195	.06062	.04708	.00065	.05690	.01992	.00115	.00160	.02015	.00406	.00297
200	.00000	.00024	.00002	.00316	.00014	.00001	.00001	.00019	.00002	.00002
210	.91700	9.51216	.01988	5.79500	2.20863	.34258	.21153	.73425	.48408	.07700
215	.00043	.03751	.00040	.01318	.02104	.00166	.00105	.00346	.00229	.00040
218	.00106	.18329	.00008	.00269	.00214	.00022	.00062	.00184	.00168	.00005
221	.00000	.00001	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
226	.01358	.00040	.00002	.01514	.00021	.00002	.00008	.00104	.00002	.00000
230	.00336	.00606	.00089	.03166	.01554	.00152	.00010	.01275	.00879	.00070
254	.00875	.04327	.00792	.04014	.20852	.03264	.00540	.00860	.00423	.00177
263	.00012	.00026	.00003	.00011	.00612	.00068	.00012	.00030	.00060	.00004
273	.00583	.07960	.02040	.02127	.00283	.00031	.00030	.00039	.00089	.00008
275	.16730	.37251	.01677	.03176	.11973	.01559	.01140	.21512	.01662	.00195
280	.01572	.03753	.00118	.00570	.05827	.00383	.00278	.02396	.00601	.00226
289	.00722	.00617	.00014	.00380	.20968	.01525	.02098	.00094	.01795	.00287
299	.00046	.00099	.00049	.00212	.00716	.00001	.00037	.00312	.00067	.00008
307	.03400	.07984	.03773	.55951	2.98695	.43453	.25171	.10351	.70041	.08259
309	1.64481	4.00750	.09536	.36656	.00409	.00057	.00215	.00059	.00086	.00010
311	.00590	.02161	.00067	.00135	.23346	.02326	.03406	.09651	.04977	.00547
314	.00333	.00774	.00013	.00042	.14104	.01324	.01566	.00216	.06634	.00680
318	.00096	.00559	.00121	.01742	.22465	.02614	.00523	.03005	.01781	.00143
320	.01674	.03554	.00086	.00438	.02834	.00270	.00359	.02672	.00386	.00043
324	.01709	.02775	.00223	.00299	.21766	.01105	.02561	.25752	.04271	.00520
326	.07402	.17007	.00225	.00906	.01321	.00234	.00360	.01705	.00740	.00049

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	48	55	58	108	112	117	125	133	141	143
1	.00000	.00000	528.77700	.00374	.00001	.40140	.00000	.00007	.00000	.00000
11	.10789	.02381	8.87759	.00002	.00028	.00008	.00038	.01471	.00004	.00059
24	.00000	.00000	.00199	.00000	.00045	.00000	.00000	.00261	.00000	.00000
26	6.20255	7.59589	.24165	.00065	.00098	.00003	.00000	.06825	.00016	.00142
29	.01824	.00898	.00036	.00000	.00000	.00000	.00000	.00002	.00000	.00000
33	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
37	.00037	.00003	.07094	.00006	.00016	.00002	.00032	.00460	.00001	.00005
38	7.41555	1.69985	3.98320	.00315	.04278	.00412	.01948	.21524	.00051	.01537
40	1.29461	.70325	.00082	.00000	.00000	.00000	.00000	.00000	.00000	.00000
45	.02088	.00115	.02104	.00008	.00002	.00011	.00093	.00606	.00000	.00004
48	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
55	6.35466	1.02025	7.83390	.01101	.12639	.01212	.15697	1.22519	.00467	.47130
58	.04130	.00546	127.42190	.00071	.00012	.00067	.00135	.04042	.00002	.00052
108	.00021	.00016	.00004	.13077	.16475	.06582	.29990	.00001	.00000	.00004
112	.01773	.00335	.00130	.00000	.14796	.00001	.00375	.00015	.00000	.00009
117	.00764	.00125	.00266	.00037	.00259	.00256	.00429	.00006	.00000	.00011
125	.82707	.85816	.20438	.00136	.19502	.00109	4.86373	.00131	.00000	.30736
133	80.62901	6.42859	.03968	.00005	.00001	.00065	.00339	3.65214	.01422	.26202
141	.00566	.00051	.00055	.00000	.00000	.00000	.00000	.00243	.00082	.00006
143	.00872	.00232	.00017	.00000	.00001	.00000	.00280	.00072	.00001	.00600
149	.12821	.02090	.00147	.00001	.00000	.00000	.00854	.01043	.00001	.07641
154	9.23963	1.03834	.00553	.00000	.00005	.00002	.00411	.02074	.00029	.01581
162	.08229	.02549	.11426	.00104	.00046	.00004	.00286	.01719	.00005	.00073
164	.11361	.02363	41.64574	.01077	.13596	.01905	.23282	.61227	.01821	.02276
174	3.78453	.10441	101.64730	.01576	1.21346	.10676	.52131	2.73787	.00699	.31476
187	6.00896	1.03698	4.91196	.01715	.00262	.02563	.14780	1.60613	.00011	.02351
191	.05793	.02669	.56169	.00049	.00008	.00082	.03539	.05149	.00092	.01646
195	.09312	.01222	4.17457	.00087	.00033	.00114	.00540	.04487	.00002	.00164
200	.15358	.06779	.00858	.00002	.00011	.00004	.00089	.01675	.00002	.00085
210	41.87545	11.65932	5.39519	.01623	.14239	.01488	.03329	.98654	.00123	.04095
215	.53310	.13667	.27213	.00854	.00686	.00362	.02198	.03471	.00012	.00651
218	2.41990	.40536	.02251	.00008	.00020	.00008	.00135	.01990	.00005	.00371
221	.00006	.00000	.00000	.00000	.00089	.00000	.18858	.00000	.00000	.00000
226	.07182	.00856	.00888	.00021	.00222	.00003	.00244	.00153	.00000	.00018
230	2.08597	.64394	45.17976	.00237	.00059	.00009	.00114	.35268	.00008	.04901
254	11.53309	1.63527	.10744	.00032	.00030	.00028	.00073	.04058	.00004	.13656
263	.18820	.02297	.00340	.00003	.00009	.00004	.00037	.00119	.00000	.00210
272	.03896	.00658	112.03850	.00065	.00660	.00102	.01155	.03763	.00088	.00206
275	19.93192	4.02548	.45401	.00019	.00625	.00045	.00400	.74040	.00030	.10728
280	4.10214	.63475	.05087	.00002	.00016	.00001	.00031	.03193	.00001	.01768
289	.55367	.08856	.01424	.00092	.00038	.00004	.00051	.43585	.00002	.06014
299	10.92101	1.49002	.00282	.00001	.00077	.00000	.00021	.00063	.00000	.02356
307	.33225	.07000	.02357	.00018	.00059	.00022	.00165	.01688	.00001	.56440
309	.05804	.01325	.00333	.00000	.00001	.00000	.00001	.00060	.00001	.00085
311	.86650	.12028	.00414	.00001	.00008	.00001	.00007	.00072	.00000	.00070
314	1.72551	.25690	.04998	.00040	.00020	.00010	.00083	.00502	.00000	.00031
319	.40639	.07889	.44836	.00157	.01592	.00336	.03059	.09648	.00056	.06981
320	.70676	.11849	.08998	.00003	.00095	.00004	.00343	.01036	.00003	.00401
324	3.64772	.84666	.04149	.00006	.00040	.00052	.00765	.00662	.00001	.05709
326	1.05563	.13239	1.31888	.05424	.01781	.06874	.56540	.05966	.00028	.00515

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	148	154	162	164	174	187	191	195	200	210
1	.00000	.00000	.00000	.00000	.00000	.00008	.00000	.06459	.00000	.00001
11	.00040	.00132	.00207	.00211	.01011	.01163	.00018	.23360	.00020	.00086
24	.00000	.00000	.00000	.00000	.00000	.00011	.00000	.00013	.00012	.00000
26	.00186	.00000	.00482	.00173	.05723	.05603	.00066	.02718	.00025	.00249
29	.00000	.00000	.00014	.00000	.00001	2.55588	.00408	.00001	.04716	.00023
32	.00000	.00000	.00000	.00000	.00000	.00234	.00000	.00000	.00001	.00000
37	.00020	.00037	.00265	.00021	.00297	.02814	.00023	.00157	.00000	.00096
39	.01973	.09008	.15824	.14495	1.02783	2.23815	.07286	.18316	.06032	3.69730
40	.00000	.00000	.00193	.00000	.00000	.25665	.00001	.00197	.01063	.12925
45	.00008	.00098	.00816	.00040	.01739	.51042	.00626	.03710	.00249	.00185
49	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
55	.29809	.80687	.15949	.22823	2.72589	4.12084	.05452	.45145	.03932	.11979
58	.00103	.01069	.02179	.00599	.09203	.42514	.10614	.38182	.05965	.11760
108	.01992	.00117	.00234	.00000	.00687	.00000	.00006	.00000	.00000	.00000
112	.00041	.00006	.00002	.00005	.00072	.00013	.00003	.00004	.00000	.00002
117	.00037	.00036	.00018	.00000	.00007	.00001	.00000	.00003	.00000	.00000
125	.17225	.01575	.00062	.00025	.08030	.04625	.00045	.00271	.00050	.00018
123	.18790	.44648	.27546	.00046	.04061	.02403	.00035	.00189	.00002	.01344
141	.00013	.00021	.00022	.00002	.00009	.00005	.00000	.00002	.00000	.00001
143	.00057	.00097	.00003	.00001	.00009	.00093	.00000	.00004	.00000	.00003
148	.01015	.00727	.00010	.00002	.00008	.00078	.00003	.00020	.00001	.00023
154	.00626	4.91005	.00053	.00007	.01015	.00044	.00002	.00107	.00002	.00047
162	.00134	.00404	.09326	.01120	.08964	.01270	.00311	.00614	.00069	.00605
164	.16662	.70414	.30122	1.99184	2.19012	1.46852	.06510	1.69061	.03312	.39980
174	.55471	1.45458	.26742	.22652	72.15898	10.02611	.14302	2.85680	.12107	.32506
197	.03727	.28481	.74477	.53324	8.27758	44.79512	1.22407	2.56668	.43168	.42757
191	.00587	.02248	.50631	.20836	.06322	.44690	.15023	.06821	.32469	.03664
195	.00128	.01258	.02116	.00862	.14531	.20955	.11157	7.26183	.02353	.02483
200	.00129	.00410	.01063	.00837	.02615	.00772	.00199	.00285	.00507	.00071
210	.07071	.28466	.41478	.42473	4.08337	2.97810	1.18930	.59528	.25125	2.92118
215	.01003	.02248	.03185	.02180	.37046	.08611	.01549	.02488	.01481	.00529
218	.00243	.00511	.00418	.00319	.01339	.05642	.00213	.00247	.02637	.01135
221	.04008	.00414	.00000	.00000	.00710	.00000	.00000	.00000	.00000	.00000
226	.00064	.00028	.00009	.00079	.01788	.00746	.00006	.00087	.00008	.00012
230	.04940	.05925	.00317	.00949	.01608	.18453	.00562	.56190	.00680	.03348
254	.09761	1.22183	.01393	.00587	.04722	.62391	.03563	.01091	.00814	.00740
263	.00039	.00136	.00070	.00040	.01466	.01347	.00011	.00106	.00089	.00006
273	.00862	.03974	.04650	.10298	.40238	.44841	.00584	.66314	.18200	.14388
275	.19573	.38847	.02435	.02297	.14957	.40503	.00576	.06406	.00752	.01329
280	.00481	.01687	.00980	.02711	.00945	.08651	.00043	.00347	.00018	.00043
289	.02362	.22193	.00077	.00111	.00549	.00933	.00012	.05585	.00217	.00019
299	.00028	.00072	.00035	.00044	.07018	.58073	.00106	.00063	.00008	.00045
307	.00071	.01312	.00130	.00134	.01100	.01035	.00024	.00165	.00015	.00219
309	.00008	.00060	.00012	.00004	.00101	.00662	.00002	.00010	.00001	.00003
311	.00155	.00058	.00061	.00087	.00156	.05018	.00011	.00024	.00002	.00004
314	.00014	.00159	.00681	.01283	.00957	.15772	.00051	.00037	.00001	.00003
318	.03276	.24545	.02951	.07907	.37629	.66580	.00831	.03937	.00262	.00560
320	.00126	.00451	.01868	.03551	.05321	.75757	.00181	.00284	.00035	.00023
324	.00499	.05433	.00317	.00155	.27964	.09395	.00294	.01826	.00229	.00326
326	.00712	.02262	.09431	.16998	.26990	12.43800	.02835	.00920	.00034	.00015

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	215	218	221	226	230	254	263	273	275	280
1	.00000	.00000	.00386	.00000	.00000	.00000	.00000	.00000	.00000	.00000
11	.00259	.01436	.00005	.00012	.00093	.00468	.00039	.00679	.00332	.00257
24	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
26	.01136	.02892	.00000	.00000	.00420	.02161	.00209	.02262	.02134	.01048
29	.00001	.01514	.00000	.00000	.00013	.32719	.00001	.00000	.00017	.10505
33	.00000	.00001	.00000	.00000	.00000	.00020	.00000	.00000	.00000	.00010
37	.00099	.03704	.00004	.00006	.00015	.32530	.00013	.00099	.00287	.00080
38	.40447	.76718	.00566	.00615	.41782	1.80295	.05505	.59456	.33467	.22590
40	.00104	1.26002	.00000	.00000	.08919	.05229	.00287	.00000	.00487	.00008
45	.01078	.01197	.00028	.00013	.08585	.01371	.00082	.00074	.00857	.00048
48	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
55	.90532	2.11395	.00847	.03540	.49309	10.33429	.21276	1.78653	6.34057	3.98405
58	.07044	.03583	.47624	.00226	.03734	.14413	.00652	.00781	.03804	.00288
108	.02384	.00056	.00000	.00634	.00000	.00001	.00005	.00000	.00000	.00000
112	.00030	.00040	.00000	.00010	.00009	.00037	.00002	.00045	.00078	.00007
117	.00010	.00010	.00000	.00028	.00000	.00002	.00000	.00000	.00006	.00009
125	.00645	.00096	.00001	.00024	.00419	.00887	.00017	.00130	.00195	.00443
133	.06347	.07194	.00001	.01483	.10768	.15109	.00390	1.04139	.39455	.05038
141	.00006	.00011	.00000	.00002	.01676	.00034	.00002	.00162	.00046	.00008
143	.00025	.00019	.00000	.00004	.00037	.00099	.00006	.00048	.00485	.00185
148	.00246	.00143	.00000	.00057	.00491	.00054	.00003	.00020	.00112	.00168
154	.00168	.00241	.00000	.00079	.00206	.01640	.00035	.00333	.00556	.00373
162	.00882	.00442	.00037	.00087	.00429	.00355	.00038	.01200	.00320	.00183
164	1.71841	.58090	.00966	.05937	2.33863	.19662	.04366	1.22260	1.59623	.44197
174	.64388	3.11731	.01108	.13075	1.20344	7.67215	.27524	13.06625	5.05481	.55628
187	3.77383	3.11124	.09640	.07818	1.76803	4.01500	.23564	.87172	1.59799	.21803
191	9.83453	.17941	.00269	.04057	.02812	.09168	.02376	.22837	.56691	.00260
195	.17017	.05147	.01238	.00496	.04317	.17205	.00847	.02274	.07370	.00824
200	.14928	.00602	.00005	.00161	.00254	.00142	.00044	.02702	.01216	.00337
210	1.56395	1.05388	.05212	.02387	.54900	2.86667	.12526	.64430	.92266	.50060
215	.49946	.04051	.00035	.00598	.03554	.08999	.03930	.05097	.09088	.04080
218	.05158	.15366	.00001	.00079	.03029	.01378	.00334	.00390	.01106	.00967
221	.00034	.00000	.03959	.37045	.00000	.00000	.00000	.00000	.00000	.00000
226	.00173	.00123	.00000	.04906	.00369	.00877	.00015	.00014	.00064	.00259
230	.42661	.15462	.00004	.00036	1.00581	.01150	.00190	.00775	.31400	.23886
254	.08037	.34333	.00138	.00185	.02511	6.78880	.04471	17.44535	5.62056	7.27035
263	.00541	.00404	.00001	.00008	.00283	.07244	.08022	.08125	.15294	.06000
273	.09118	.03633	.00048	.00349	.14516	.75267	.04867	17.09784	.12068	.05697
275	.11150	.39500	.00031	.08225	.03020	.55741	.07136	1.30780	2.09197	1.43761
280	.01142	.01897	.00000	.00088	.00418	.04761	.00382	.10728	.05226	.19161
289	.06449	.23893	.00001	.02759	.01365	.17837	.01753	.02271	.44828	1.03877
299	.04652	.00967	.00000	.00004	.00072	.00712	.00036	.00103	.00279	.00329
307	.07921	.01344	.00002	.00099	.00527	.10338	.00856	.01057	.38361	.04979
309	.00068	.00051	.00000	.00004	.00025	.00321	.00013	.00296	.00269	.00172
311	.00462	.04082	.00000	.00003	.00065	.00561	.00119	.00194	.00729	.00341
314	.01507	.00433	.00000	.00008	.00032	.06497	.00114	.00126	.00295	.00280
318	.39969	.26920	.00103	.01071	.48621	1.90385	.91330	1.00562	2.04672	1.40721
320	.05960	.00648	.00001	.00037	.00120	.01320	.00216	.00727	.02610	.01926
324	.01399	.06227	.00039	.00066	.00399	.30425	.01693	.02677	.33025	.57051
326	.95208	.04898	.00001	.00036	.07816	.02759	.00449	.02360	.01652	.03514

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	289	299	307	309	311	314	318	320	324	326
1	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
11	.00024	.00119	.00198	.00032	.00040	.00019	.00043	.00068	.00143	.00040
24	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
26	.00056	.11640	.01477	.01093	.00355	.00227	.00622	.00790	.03155	.00412
29	.00000	.00000	.00001	.00000	.00000	.00000	.00000	.00000	.00000	.00000
33	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
37	.00018	.00020	.00183	.00029	.00020	.00012	.00056	.00025	.00067	.00008
39	.02090	.10237	.12719	.02083	.02721	.01767	.06298	.07171	.17762	.04748
40	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
45	.00021	.00007	.00004	.00001	.00003	.00001	.00050	.00006	.01372	.00067
48	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
55	.57269	2.69911	1.20923	.34665	.57074	.43543	.41145	.80132	1.77238	.63555
58	.00141	.00043	.00052	.00498	.00037	.00022	.00492	.00219	.01059	.00868
108	.00000	.00040	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00001
112	.00002	.00030	.00041	.00001	.00002	.00002	.00007	.00028	.00026	.00005
117	.00000	.00014	.00003	.00000	.00001	.00001	.00000	.00005	.00010	.00001
125	.00460	.02023	.00061	.00303	.00008	.00028	.00335	.00422	.00115	.00062
133	.01683	.00705	.00143	.01471	.00785	.00756	.01655	.02172	.16265	.05550
141	.00002	.00000	.00001	.00002	.00001	.00001	.00003	.00004	.00026	.00008
143	.00012	.00156	.04738	.01150	.00248	.00247	.00205	.01717	.00582	.00489
148	.00017	.00101	.00014	.00002	.00002	.00008	.00002	.00007	.00135	.00040
154	.00028	.00171	.00237	.00138	.00019	.02510	.00060	.00091	.00143	.00093
162	.00053	.02236	.00063	.00007	.00009	.00007	.00023	.00207	.01379	.00158
164	.09666	.01109	.21330	.02392	.00432	.01068	.12438	.33801	.76515	.06141
174	.15789	13.45672	.85120	.61771	.60917	.46327	.66011	1.52015	5.69041	.80909
187	.06024	.33109	.06618	.01500	.02145	.01258	.12444	.04208	3.20378	.17949
191	.01374	.08431	.00021	.00009	.00021	.00012	.00322	.01815	.14108	.01525
195	.00253	.00216	.00111	.00033	.00057	.00037	.00609	.00155	.04005	.00868
200	.00098	.00141	.00030	.00024	.00015	.00006	.00028	.00036	.00395	.00030
210	.03157	.23692	.09906	.02034	.05248	.03408	.22895	.16390	.52737	.19905
215	.01495	.08635	.06424	.00723	.00730	.00793	.07192	.04584	.05967	.04028
218	.00210	.02293	.00608	.00031	.01017	.00341	.00849	.01829	.07859	.02075
221	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
226	.00009	.01222	.00051	.00025	.00017	.00007	.00080	.00047	.00279	.00087
230	.02610	.01257	.00208	.00025	.00010	.00007	.00086	.00368	.16944	.02707
254	.70589	.12741	1.56725	.37244	.43949	.33206	.58069	.93241	1.56006	.66749
263	.00524	.05037	.16032	.00368	.01069	.00272	.02066	.06291	.05084	.03227
273	.00712	.01210	.05633	.02573	.00147	.00158	.00815	.02851	.04165	.00586
275	.07694	.40543	.52834	.05353	.09079	.12738	.19696	.40509	.57564	.22096
280	.00345	.01440	.05167	.05183	.02386	.02975	.01363	.03359	.05261	.02657
289	.05050	.24302	.34179	.06399	.02106	.07836	.06300	.18147	.28055	.09223
299	.00006	7.96573	.00517	.00009	.00126	.00097	.00255	.00364	.80342	.01960
307	.00617	.07125	20.72481	1.30626	.43105	.20469	.07905	1.59881	.99114	.31749
309	.00015	.00020	.02359	6.01603	.00198	.00105	.00032	.00238	.00136	.00108
311	.00055	.00292	.03176	.03182	.08254	.00778	.00481	.01269	.00542	.00639
314	.00035	.00829	.00716	.00778	.00182	.48204	.00316	.01419	.00983	.02110
318	.37148	1.77961	1.87006	.15194	.21672	.20323	3.28637	1.13625	1.17729	1.00012
320	.00140	.01511	.11050	.04837	.01070	.00762	.01370	.05228	.04055	.05071
324	.01870	.93671	1.79682	.01728	.12021	.21411	.34807	1.11579	32.11856	.69313
326	.00604	.01351	.05073	.14040	.01071	.00976	.02169	.32822	.01839	1.86852

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	339	345	350	361	367	370	375	379	384	389
1	.00000	.00000	.00000	.00000	.00000	.00000	.00002	.00000	.00000	.00000
11	.00606	.00050	.00061	.00123	.00011	.00199	.00266	.00111	.00119	.00010
24	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
26	.15415	.00375	.01460	.00529	.00131	.05700	.06365	.03018	.01547	.00382
29	.00000	.00000	.00000	.00001	.00000	.00001	.00000	.00000	.00001	.00000
32	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
37	.00000	.00035	.00036	.00127	.00004	.00157	.00050	.00045	.00110	.00009
38	1.07679	.03241	.08144	.03842	.00989	.14210	.24612	.14046	.13076	.01806
40	.00000	.00000	.00000	.00000	.00000	.00004	.00449	.00027	.00006	.00000
45	.00065	.00046	.00010	.00053	.00014	.00212	.03156	.00364	.00071	.00013
48	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
55	9.62036	.51370	1.49439	.56169	.06822	2.12909	3.79259	1.53073	1.25320	.19124
58	.00740	.00521	.00099	.00167	.00125	.00521	.20788	.04822	.00198	.00282
109	.00002	.00000	.00001	.00537	.00018	.00001	.00001	.00002	.00033	.00049
112	.00118	.00004	.00011	.00007	.00001	.00136	.00260	.00011	.00028	.00009
117	.00072	.00001	.00070	.00004	.00001	.00031	.00022	.00015	.00006	.00001
125	.11051	.00188	.00374	.00174	.00033	.01475	.01536	.00582	.28832	.00204
133	.00283	.15101	.01122	.15206	.00364	.06980	.00339	.00539	.12455	.06809
141	.00011	.00857	.00002	.00005	.00000	.00011	.00001	.00001	.00017	.00011
143	.04612	.01115	.00041	.01440	.00005	.00117	.00127	.00168	.00378	.00031
148	.00432	.00022	.00008	.00291	.00089	.05277	.02550	.00095	.00220	.00026
154	.03216	.00121	.00097	.00495	.00032	.00346	.00320	.00109	.02786	.06018
162	.14125	.00044	.00085	.00248	.00021	.04612	.02789	.01995	.00110	.00062
164	9.07053	.24561	.37460	1.16732	.11096	.60197	.74022	.63432	.12085	.00685
174	6.53461	.83484	1.73989	1.39917	.14893	7.41689	4.04333	9.64328	2.42513	.60365
187	.13254	.13241	.04211	.16077	.04378	.65451	7.10279	1.19894	.18396	.02878
191	.02531	.10540	.00060	.59711	.08674	.48284	.69975	.43413	.23249	.01569
195	.01521	.00659	.00242	.00790	.00207	.02116	.25992	.05862	.01045	.00580
200	.00168	.00209	.00027	.00938	.00139	.01832	.01680	.00896	.00516	.00031
210	3.52407	.11563	.21308	.07408	.03685	.23760	2.58346	.94980	.27586	.03707
215	.32283	.02940	.07458	.04745	.00734	.17310	.22584	.06891	.07112	.00739
218	.18606	.00769	.01629	.02038	.01610	.05017	.04592	.07153	.00528	.00113
221	.00001	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
226	.04205	.00062	.00189	.00030	.00004	.00507	.00481	.00187	.00135	.00022
230	.05929	.02406	.00266	.43172	.14882	.15638	.52503	.06183	.06931	.00339
254	.85996	.40641	.70903	.46549	.09875	.31786	.41945	.09032	1.59043	.08769
263	.22449	.02087	.05050	.03060	.00469	.19594	.43017	.14957	.05732	.01051
272	.46340	.01363	.02005	.05935	.00615	.03804	.04873	.03932	.01366	.00086
275	1.95540	.16727	.42905	.20584	.04000	.92006	2.55590	1.30193	.36164	.06836
280	.36918	.07152	.02031	.01017	.00228	.03960	.05549	.03542	.02700	.00449
289	1.47963	.13475	.10897	.15803	.05845	.51263	.64037	.27001	.17681	.03846
299	.31856	.00244	.21759	.00041	.00009	.86945	.09615	.01929	.01246	1.20840
307	1.47198	.57117	.47476	.45007	.00075	.04151	.03646	.04490	.78240	.01295
309	.00244	.00107	.00093	.00030	.00004	.00064	.00039	.00019	.00334	.00021
311	.03769	.00765	.00373	.00905	.00013	.00357	.00313	.00429	.00481	.00054
314	.02607	.00207	.00336	.00146	.00008	.00782	.00323	.00208	.02899	.00034
318	3.16783	.57267	2.87642	.39906	.06590	.88343	1.59211	.61169	.70172	.21459
320	.14782	.02758	.01667	.02357	.00126	.01990	.01463	.01137	.01424	.00559
324	15.69187	.69752	.35200	.76675	.22771	1.66114	1.43015	.43757	.06063	.08485
326	.04507	.01127	.02653	.00340	.00059	.10451	.03491	.01424	.00751	.00171

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	400	406	415	433	441	442	443	444	447	454
1	.00145	.00000	.00052	.00011	.00000	.00000	.00000	.00001	.00049	.45072
11	.00370	.00175	.07409	.13559	.00238	.00025	.00277	.00071	.00776	2.52633
24	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
26	.05527	.06389	.02858	.11246	.11058	.03480	.20176	.08260	.94145	.08572
29	.12183	.00005	.00000	.00000	.00000	.00000	.00961	.00001	.00001	.00000
33	.00011	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
37	.00098	.01021	.00031	.00008	.00000	.00000	1.90951	.00159	.00187	.00043
38	.49753	.19541	.15919	6.42872	.40032	.00947	9.28077	4.99376	2.79902	.27757
40	.00067	.00005	.00017	.00000	.00000	.00000	.00128	.00000	.00000	.00000
45	.00362	.07860	.00457	.00095	.00028	.00030	.00398	.00612	.00039	.00028
49	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
55	2.71892	1.51413	1.17573	12.77506	112.96250	1.73858	55.58596	6.33829	17.62004	2.76602
58	.20100	.03772	.14526	.11559	.00187	.00041	.01354	.04257	.05654	63.28226
108	.04940	.00000	.10621	.00005	.00301	.00000	.00000	.00000	.00002	.00000
112	.00421	.00011	.00420	.00141	.00867	.00002	.00019	.00005	.00173	.00006
117	.00113	.00014	.00087	.00024	.00005	.00001	.00000	.00000	.00019	.00004
125	.01412	.00981	1.34333	.20222	.07330	.00990	.00506	.00095	.44790	.07871
133	.04427	.00122	.20539	.29490	.00118	.00001	.00008	.03843	1.19590	.00794
141	.00023	.00001	.00108	.00046	.00000	.00000	.00000	.00005	.00818	.00002
143	.00750	.00524	.00306	.00428	.00419	.00001	.00090	.00047	.00112	.00011
148	.00896	.00113	.00868	.00041	.00051	.00004	.00004	.00008	.00077	.00235
154	.01941	.00197	.20592	.00128	.00216	.00002	.00026	.00038	.01267	.00102
162	.04299	.01487	.00994	.00291	.01024	.00186	.00076	.00069	.03211	.00741
164	3.56628	1.24784	2.45997	.20987	.24445	.00219	.02420	.00110	1.93122	1.88480
174	11.40620	6.89646	9.06581	5.97753	12.14067	.41632	.54469	.14206	69.80047	6.10509
187	1.30786	17.12979	1.30975	.25204	.19640	.04293	.66928	1.22775	.07874	.05473
191	1.95300	1.25701	.91257	.01563	.00538	.00006	.01083	.02415	.00409	.00205
195	.16523	.06735	.04763	.01077	.21733	.00166	.02733	.05517	.07183	.02838
200	.03948	.01861	.01885	.00170	.00910	.00006	.00091	.00073	.00039	.00010
210	1.99609	.84638	.61815	24.58081	1.48940	.03347	8.39423	1.53673	8.14070	.36871
215	.29533	.10562	.14457	.01671	.02935	.00052	.00796	.01539	.03065	.02280
218	.05784	.01438	.02471	.00515	.00916	.00104	.00263	.00177	.00701	.01279
221	.00004	.00000	.15566	.00001	.00001	.00000	.00000	.00000	.00001	.00001
226	.00872	.00312	.02652	.01813	.02531	.00297	.00232	.00079	.04658	.04669
230	.93142	.15878	.04926	.05700	.05532	.00061	.00556	.15290	.05730	.41977
254	1.27019	.18663	.50378	.03345	.01514	.00009	.03489	.02467	.04401	.00182
263	.11731	.19293	.04009	.00159	.00328	.00027	.00138	.00084	.00119	.00035
273	.31771	.08163	.12415	.03459	.02936	.00017	.02936	.02124	.20109	.09507
275	1.16129	.16512	.27738	.58335	.59478	.00160	.04275	.48600	.78471	.61428
280	.08907	.01387	.02138	.00990	.01252	.00007	.00260	.00552	.00945	.00732
289	1.59614	.29822	.11255	.01143	.44634	.00038	.06037	.00084	.00384	.00406
299	.98083	.28637	.00272	1.80712	.01297	.03164	.00954	.03770	.00790	.00111
307	.20991	.16658	.07606	.92354	6.10447	.00019	.99054	.03751	.01740	.00192
309	.00243	.00037	.00061	.00134	.00660	.00000	.00097	.00100	.00499	.00036
311	.01006	.00429	.00126	.00299	.00263	.00001	.00104	.00159	.00282	.00042
314	.00386	.00247	.00259	.01079	.00080	.00010	.02777	.00078	.08810	.00668
318	2.01493	.44617	.47888	.18532	.06158	.00584	.10387	.01834	.23571	.00463
320	.05682	.01388	.01175	.02369	.03138	.00026	.21648	.01576	.18825	.01062
324	8.85488	.47599	.26904	.15403	.26314	.01620	.44439	.12795	.01458	.00199
326	.04153	.03758	.05566	.01170	.00358	.00024	.02045	.01230	.16739	.18245

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	456	461	463	469	477	483	490	510	513	519
1	.00000	.00000	.00357	.00728	.00000	.01735	.29668	.00005	.01654	.00000
11	.00371	.00974	.01221	.00811	.00706	.02021	.96171	.00257	.09603	.00000
24	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
26	.31976	112.86090	2.00251	1.03047	.05473	7.18538	8.95937	1.74018	.03136	.00000
29	.00000	.00000	.00001	.00000	.00000	.00000	.00004	.00310	.00000	.00000
33	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
37	.00000	.00009	.00150	.00083	.00087	.00047	.00784	.61694	.00028	.00000
38	.50984	.58530	1.17530	1.75215	.97737	.28556	4.65466	15.63356	.09817	.00000
40	.00000	.00013	.00001	.00000	.00000	.00000	.00034	.00045	.00000	.00000
45	.00005	.00043	.00339	.00942	.00021	.00098	.15267	.01224	.00004	.00000
48	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
55	13.73675	269.02240	14.22611	11.83780	3.96013	6.44029	137.45330	131.09830	1.07262	.00000
58	.00043	.00219	.32547	.21705	.00128	2.78008	19.82139	.08709	1.80765	.00000
108	.00005	.00000	.02882	.00004	.00000	.00622	.01465	.00001	.00057	.00000
112	.00139	.00016	.03714	.00400	.00224	.00471	.05082	.00292	.00036	.00000
117	.00011	.00000	.00077	.00031	.00016	.00043	.00076	.00004	.00009	.00000
125	.69365	.18422	.74239	.29217	.10198	.35397	.53395	.01437	.27261	.00000
133	.00034	.00918	.10503	.03372	.02075	.01957	.16121	.00008	.00010	.00000
141	.00000	.00000	.00013	.00001	.00002	.00002	.00017	.00000	.00000	.00000
143	.00050	.18935	.00218	.06504	.02810	.00053	.00193	.00834	.00047	.00000
148	.00171	.00016	.01072	.00138	.02057	.00233	.01351	.00010	.00044	.00000
154	.00478	.00550	.01340	.02668	.00546	.15748	.08869	.00071	.00077	.00000
162	.00021	.00644	.01617	.04501	.00128	.00241	.08150	.00156	.00088	.00000
164	.01196	.04770	.19959	.18793	.01290	.01249	.69058	.00033	.04283	.00000
174	21.66465	19.56001	12.56849	33.78529	5.13491	14.77061	40.55537	.41306	.60706	.00000
187	.01950	1.38787	1.02590	2.37755	.09539	.58237	23.11779	2.23613	.01066	.00000
191	.00122	.00138	.02370	.06550	.00256	.00045	.33199	.05463	.00039	.00000
195	.01203	.04792	.56487	.72836	.01958	.02161	27.00460	.16330	.00817	.00000
200	.00036	.00025	.00084	.00399	.03045	.00027	.00869	.00215	.00009	.00000
210	1.83942	2.17096	2.62271	6.94136	3.99291	.51450	15.99763	10.48665	.26655	.00000
215	.01350	.01654	.06503	.13769	.30725	.00771	.34776	.01151	.00351	.00000
218	.00623	.00692	.03277	.01796	.10573	.00082	.09894	.00343	.00034	.00000
221	.00001	.00000	.00580	.00002	.00000	.00004	.00002	.00000	.00100	.00000
226	.04003	.01721	.02211	.10151	.01690	.07587	.08230	.00100	.02190	.00003
230	.04281	.01445	.56961	.15858	3.58431	.00546	1.93300	.00905	.00426	.00000
254	.00160	.01387	.04004	.09551	.04593	.00320	.29270	.08230	.00086	.00000
263	.00015	.00009	.00198	.00576	.00261	.00041	.00729	.00073	.00025	.00000
273	.03951	.02578	.03743	.77680	.07008	.00486	.24459	.01002	.00302	.00000
275	.02217	.05678	.33574	.36004	8.74150	.06369	.39887	.03946	.02779	.00000
280	.00039	.01597	.01259	.05208	.10980	.00114	.02281	.02087	.00088	.00000
289	.00037	.00553	.09779	.07927	.97806	.01170	.39746	.00527	.01590	.00000
293	.00508	.00049	.02390	.12743	.02180	.00144	.15262	.01184	.00041	.00000
307	.00403	.00342	.03471	.76660	2.21332	.00286	.02081	.06826	.00983	.00000
309	.00010	.43557	.00300	2.53154	.01056	.00003	.00101	2.39674	.00007	.00000
311	.00012	.00079	.01375	.03134	.02571	.00015	.00260	.01363	.00029	.00000
314	.00019	.00094	.01950	.37167	.01344	.00034	.00315	.00378	.00687	.00000
318	.01471	.00800	.23889	1.34834	.67036	.05182	.13040	.07323	.01833	.00000
320	.00235	.00346	.04770	.09606	.08764	.00146	.02953	.03109	.00086	.00000
324	.00653	.00610	.06393	1.15891	.75692	.01002	.16480	.11795	.00275	.00000
326	.00050	.01403	.22906	.72690	.02571	.00378	.06297	.06565	.00038	.00000

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	524	528
1	.00000	.00000
11	.00000	.00000
14	.00000	.00000
26	.00000	.00000
29	.00000	.00000
33	.00000	.00000
37	.00000	.00000
39	.00000	.00000
40	.00000	.00000
45	.00000	.00000
48	.00000	.00000
55	.00000	.00000
59	.00000	.00000
109	.00000	.00000
112	.00000	.00000
117	.00000	.00000
125	.00000	.00000
133	.00000	.00000
141	.00000	.00000
142	.00000	.00000
148	.00000	.00000
154	.00000	.00000
162	.00000	.00000
164	.00000	.00000
174	.00000	.00000
197	.00000	.00000
191	.00000	.00000
195	.00000	.00000
200	.00000	.00000
210	.00000	.00000
215	.00000	.00000
219	.00000	.00000
221	.00000	.00000
226	.00000	.00000
230	.00000	.00000
254	.00000	.00000
263	.00100	.00000
273	.00000	.00000
275	.00000	.00000
280	.00000	.00000
293	.00000	.00000
299	.00000	.00000
307	.00000	.00000
309	.00000	.00000
311	.00000	.00000
314	.00000	.00000
318	.00000	.00000
320	.00000	.00000
324	.00000	.00000
326	.00000	.00000

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AGGREGATION/LISTER REPORT # 402
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AGGREGATION/LISTER REPORT # 402
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AGGREGATION/LISTER REPORT # 402
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AGGREGATION/LISTER REPORT # 402
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AGGREGATION/LISTER REPORT # 402
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CMDTY NO.	ROW SUM	COL SUM
1 1	598.67140	120.96690
2 11	99.97590	135.38760
3 24	.00725	4.77154
4 26	161.77780	133.71130
5 29	28.97150	114.52170
6 33	.00661	9.53864
7 37	3.15840	4.45973
8 38	86.18496	85.62374
9 40	4.06448	12.77193
10 45	1.15280	2.11911
11 48	.00000	1464.33700
12 55	908.11200	176.91170
13 58	220.91780	1344.80100
14 108	.93679	.69165
15 110	.31196	9.95380
16 117	.05531	1.27465
17 125	13.91903	14.33719
18 133	97.51160	39.62259
19 141	.05455	.16591
20 143	.66131	6.97027
21 148	.44599	7.22456
22 154	16.01478	32.98015
23 160	1.01410	9.44893
24 164	89.35660	11.68299
25 174	566.71810	329.37490
26 187	182.32570	210.74860
27 191	21.24173	6.32080
28 195	42.95952	75.19135
29 200	.73084	2.91421
30 210	204.46180	14.59034
31 215	5.61768	47.41682
32 218	4.47218	58.06334
33 221	.89394	1.19182
34 226	.85911	3.16682
35 230	61.42235	20.29411
36 254	68.63137	113.91620
37 263	2.67191	6.15667
38 273	135.71050	118.91510
39 275	58.44500	82.39932
40 280	6.88726	50.51628
41 289	12.92886	6.02666
42 299	28.25124	123.02190
43 307	48.24705	53.18612
44 309	17.67440	14.14994
45 311	1.96583	7.63580
46 314	3.78365	6.70011
47 318	29.79859	13.96557
48 320	3.56971	24.71042
49 324	78.71217	120.10360
50 326	22.18412	17.24812
51 339	707.25670	1188.55500
52 345	15.18783	13.54398
53 350	2.68244	30.84452
54 361	2.56474	17.48564

55	367	.59151	3.24372
56	370	62.22398	158.86600
57	375	520.57900	272.37300
58	379	27.00946	91.32652
59	384	58.22991	32.54143
60	389	5.35639	12.57835
61	400	211.44840	244.56520
62	406	58.01580	130.11970
63	415	20.50401	60.42579
64	423	536.64370	354.02050
65	441	528.12740	448.93900
66	442	176.19680	73.23160
67	443	252.36420	176.57880
68	444	300.73720	51.46625
69	447	1145.72600	616.15600
70	454	70.15596	193.41460
71	456	1072.34200	1277.80600
72	461	1544.21500	1247.95400
73	463	214.28830	293.96960
74	469	3424.47000	1438.95300
75	477	137.80520	288.89440
76	483	138.01680	257.58380
77	490	191.77730	1500.71100
78	510	326.16460	357.01410
79	513	327.63540	29.56265
80	519	.00000	.00000
81	524	.00000	.00000
82	528	.00000	.00000
TOTALS		16094.77000	16094.76000

TABLE 1B

COLORADO SMM 1990
Base Year Information

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Industry	Base Year Final Demand (MMS)	Base Year TIO (MMS)	Employee Comp Income (MMS)	Property Income (MMS)	Total PoW Income (MMS)	Total Value Added (MMS)	Employment Number of Jobs
1 1 LIVESTOCK PRODUCTS	106.5468	705.2183	72.2532	277.8086	350.0618	414.4713	13229.
11 2 OTHER AGRI. PROD.	237.2443	337.2202	24.9577	58.6863	83.6440	87.2920	9333.
14 Forestry Products	11.1621	11.1694	.1538	.2368	.3906	.6293	82.
24 4 AGRI., FOREST, FISH SERV	192.4675	354.2453	92.3713	36.6979	129.0692	129.0692	8603.
22 6 NONFERR. METAL ORE MIN.	343.4071	372.3926	91.2830	60.6076	151.8906	165.1034	1259.
33 Ferrous alloy Ores, Except V	40.6032	40.6098	4.7342	12.9051	17.6393	18.4129	63.
37 Coal Mining	43.6250	46.7834	20.0716	11.2501	31.3221	35.4941	367.
48 8 CRUDE PETROL. & NAT GAS	2143.7380	2231.9230	208.7283	1264.2800	1473.0080	1712.7250	6179.
40 9 STONE & CLAY MINING	105.2780	109.7570	21.8359	37.2457	59.0816	61.5353	931.
45 Chemical, Fertilizer Mine	12.6930	13.9460	.1685	5.6409	5.8094	5.8237	4.
48 11 NEW CONSTRUCTION	4807.1510	4807.1510	1025.8060	438.6886	1464.4950	1481.1790	53696.
55 12 REPAIR & MAINT. CONST.	278.1039	1186.2160	527.5239	168.0500	695.5740	703.5132	25191.
58 14 FOOD & KINDRED PROD.	4855.4860	5076.4040	578.7294	682.9857	1261.7150	1631.1570	16259.
108 16 BROAD & NAPP FABRICS,	2.5021	3.4389	.7489	.0827	.8316	.8594	40.
112 18 APPAREL	56.6505	56.9623	17.9519	6.4985	24.4504	24.6592	1015.
117 17 MISC. TEXTILE GOODS	4.6381	4.6934	1.8445	-.5509	1.2936	1.3215	43.
125 19 MISC. FABRICATED TEXTI	57.5320	71.4510	18.5095	10.7586	29.2681	29.4507	1036.
133 20 WOOD CONTAINERS	81.2696	178.7812	51.2242	17.5150	68.7392	69.7206	2440.
141 Wood Containers	.3974	.4519	.0642	-.0206	.0436	.0450	8.
143 61 OTHER TRANSPORTATION E	31.3415	32.0029	6.4094	.3172	6.7266	6.8075	338.
149 22 HOUSEHOLD FURNITURE	28.9861	29.4321	7.6145	2.4584	10.0729	10.1890	495.
154 23 OTHER FURNITURE & FIXT	108.5852	124.6002	34.0133	20.1220	54.1353	54.5502	1388.
162 24 PAPER AND ALLIED PROD.	42.2753	43.2894	8.2048	5.2332	13.4380	13.7329	295.
164 Paperboard Containers And	9.9598	99.3164	23.8048	11.6572	35.4620	36.0889	687.
174 26 PRINTING AND PUBLISHIN	955.6320	1522.3500	415.4926	301.7383	717.2308	721.9094	16046.
197 27 CHEM. & SELECTED CHEM.	1095.3460	1277.6720	330.4310	318.0492	648.4802	661.5045	6513.
191 Plastics Materials And Re	2.1201	23.3614	2.2323	1.5425	3.7748	3.9384	72.
195 29 DRUGS, CLEANING & TOIL	159.9364	202.8960	40.6600	30.7549	71.4149	72.3490	1077.
200 Paints And Allied Product	22.9559	23.6867	3.8491	4.0177	7.8668	7.9485	103.
210 31 PETR. REFINING & RELAT	283.4797	487.9417	23.7544	70.5929	94.3473	109.4995	421.
215 32 RUBBER & MISC. PLASTIC	293.3484	298.9661	70.8800	53.3458	124.2258	126.0603	2798.
219 36 STONE & CLAY PROD.	400.7322	405.2055	134.4829	75.4333	209.9162	214.3643	4345.
221 Leather Tanning And Finis	2.0393	2.9332	.5783	.0843	.6626	.6725	19.
226 34 FOOTWEAR & OTHER LEATH	13.5561	14.4152	4.0295	1.3260	5.3555	5.3922	156.
230 35 GLASS & GLASS PROD.	20.5402	81.9633	26.2189	8.9341	35.1530	35.9747	779.
254 37 PRIMARY IRON & STEEL M	391.2878	459.9142	96.1271	39.5684	135.6955	139.3835	2645.
263 38 PRIMARY NONFERROUS MAN	36.7505	39.4224	10.3438	1.8179	12.1617	12.4765	268.
273 39 METAL CONTAINERS	500.9426	636.6532	102.2269	90.6818	192.9087	195.6557	2174.
275 40 OTHER FABRICATED METAL	321.7938	380.2395	96.3019	72.9529	169.2548	171.2540	3647.
280 41 HEAT., PLUMBING, FABR.	243.0868	249.9743	71.6074	18.0110	89.6184	91.1980	2557.
289 41 SCREW MACHINE PROD. & S	17.5090	30.4379	9.4952	5.2515	14.7467	14.9776	297.
299 13 ORDNANCE & ACCESSORIES	2585.9070	2614.1590	741.6367	735.2265	1476.8630	1487.9360	12980.
307 43 ENGINES & TURBINES	172.9183	221.1654	49.2683	30.5655	79.8338	81.3588	1116.
309 44 FARM & GARDEN MACHINER	23.6917	41.3661	9.0585	5.6070	14.6655	14.8698	320.
311 45 CONSTR. & MINING MACHI	41.4596	43.4258	14.5177	5.5270	20.0447	20.2736	436.
314 46 MATERIALS HANDLING MAC	32.8931	36.6768	10.6419	7.3554	17.9973	18.1278	341.
318 47 METALWORKING MACH. & E	43.2907	83.0893	38.3434	11.0411	49.3845	50.0239	1198.
320 49 GENERAL INDUSTRY MACHI	133.7395	137.3118	44.6314	16.7918	61.4232	62.1548	1259.
324 53 ELECTRICAL INDUSTRIAL	480.8188	559.5453	238.6311	68.6420	307.2731	312.0556	5860.

326 49 SPECIAL INDUSTRY MACHI	68.4942	90.6683	31.6164	9.7504	41.3668	41.8463	914.
339 51 OFFICE COMPUTING & ACC	3096.0730	3803.3300	1104.1590	784.4351	1888.5940	1915.8210	20969.
345 52 SERVICE INDUSTRY MACHI	49.1168	64.3046	14.2441	10.9551	25.1992	25.4122	460.
350 50 MISCELLANEOUS MACHINERY	163.4017	166.0943	70.1674	19.1944	89.3618	90.7784	2433.
361 54 HOUSEHOLDS APPLIANCES	88.1263	90.6910	25.3639	18.0637	43.4276	43.8581	872.
367 55 ELECTRIC LIGHTING & WI	14.2851	14.8766	4.0669	1.6755	5.7424	5.8093	167.
370 56 RADIO, TV & COMM. EQUI	572.6985	634.9443	190.5944	114.0924	304.6868	307.7929	4732.
375 57 ELECTRONIC COMPONENTS	189.3119	708.7924	235.4687	-7.7478	227.7209	234.5664	7002.
379 58 MISC. ELECTRICAL MACHI	315.4566	342.4661	64.8926	72.4860	137.3686	138.6679	2128.
384 59 MOTOR VEHICLES & EQUIP	92.4816	150.7116	25.3286	12.2260	37.5546	41.6256	1095.
389 60 AIRCRAFT & PARTS	189.7524	195.1189	70.9958	32.0698	103.0656	103.9460	1853.
400 62 SCIENTIFIC & CONTROL	924.3405	1142.1260	390.7062	212.5231	603.2293	608.8117	10259.
406 63 OPTICAL, OPHTHALMIC, PH	468.3574	526.3765	131.0171	164.3426	295.3597	298.0818	2848.
415 64 MISCELLANEOUS MANUFACT	238.8793	259.3833	61.4755	31.8351	93.3106	94.6244	3205.
433 65 TRANSPORTATION & WAREH	349.6494	1486.2930	584.6965	270.0976	854.7941	897.1089	24642.
441 Communications, Except Ra	1817.7830	2345.9110	539.7270	1126.7450	1666.4720	1720.9360	11857.
442 Radio And Tv Broadcasting	7.8098	184.0065	48.9647	23.1967	72.1014	73.4113	1858.
443 Electric Services	469.4692	721.8334	113.0511	271.9645	385.0156	423.0294	2359.
444 69 GAS & SANITARY SEPV	311.9186	612.6558	76.8383	79.8057	156.6440	175.1640	2112.
447 69 WHOLESALE & RETAIL TPA	5166.0920	6316.6070	3523.6490	857.2263	4380.8760	5359.8730	187164.
454 Eating & Drinking	1082.1050	1152.2610	666.7033	-101.8848	566.8185	682.4851	72814.
456 70 FINANCE & INSURANCE	2252.8230	3325.1660	1373.2200	50.5280	1423.7480	1557.6240	53110.
461 71 REAL ESTATE AND RENTAL	6255.8340	7800.0480	289.3123	4450.3470	4739.6590	6050.2800	45006.
463 72 HOTELS, PERSONAL SERV	995.1357	1209.4240	377.8873	264.2824	642.1697	743.6429	42190.
469 73 BUSINESS & PROF. SERV	2704.2810	6128.7520	2736.1460	1337.0030	4073.1490	4092.4690	139669.
477 75 AUTOMOBILE REPAIR & SE	942.9663	1080.7710	192.7836	181.8040	374.5876	383.9182	13137.
483 76 AMUSEMENTS	482.8897	690.9064	217.4387	86.4205	303.8591	318.4197	25984.
490 77 HEALTH, EDUCATION & S.	4736.8930	4998.6700	2224.9510	403.4881	2628.4390	2645.7150	106770.
510 79 STATE & LOCAL GOVT. ENT	609.7942	935.9588	178.2274	218.9099	397.1373	397.5436	4955.
511 78 FEDERAL GOVT. ENTERPRI	183.5710	911.2064	452.9557	.9492	453.9039	453.9039	12526.
514 81 GOVERNMENT INDUSTRY	5471.3690	5471.3680	5471.3670	.0000	5471.3670	5471.3670	181550.
514 Rest Of The World Industr	.6507	.6507	.0000	169.3098	169.3098	169.3098	0.
518 Inventory Valuation Adjust	.0000	-.4711	.0000	-.6616	-.6616	-.6616	0.
Total	62849.1200	78954.0200	26914.3900	16269.4400	43183.8400	45892.3500	1197048.
Population =	2219731.						

V. CONSTRUCTION OF REGIONAL INCOME DISTRIBUTION MATRICES

The construction of the Multisector Income Distribution Matrix follows the procedures in Rose et al. (1988) and Rose et al. (1993). Data are collected directly, data linking sectoral income disbursements by income bracket of recipient are not collected for research purposes by any government agency, nor has there been much progress in compiling much data by independent researchers. There are, however, some data for individual income types as well as methods to adapt other data for our purposes.

A wage and salary matrix for individuals was constructed according to a method first used by Golladay and Haveman (1977) and Rose (1977). This involves transforming industry/occupation data with the use of average salaries or salary distributions (U.S. BLS, 1991a). A methodological and empirical innovation of our work, however, was the mapping of individuals to households to account for multiple job-holders and multiple-earner households. For this we used the U.S. Bureau of the Census (1989) "Current Population Survey: Annual Demographic (Microdata) File." The manner in which these matrices link changes in factor returns to income distribution will be discussed below.

Due to the unavailability of other data, we utilized some prior work as the cornerstone of our estimation of multi-sector, multi-bracket accounts for capital-related income. A Dividend Distribution Matrix for 1982, based on primary data collected by the New York Stock Exchange, was taken from Rose et al. (1988) and adjusted to 1987 control totals for income brackets (IRS, 1990) and sectors (U.S. BEA, 1992). This matrix was used as the basis for the distribution of interest payments, business/professional, and partnership/small corporation income as well. For farm income, farm rental income, and royalties, a multisector distribution was not needed and a direct apportioning was undertaken on the basis of agriculture and mining sub-sector value-added shares. Finally, several other types of capital-related income (e.g., sale of capital assets and most rental income received by individuals) are simply part of the intrahousehold account and do not require any multi-sector disaggregation, i.e., the IRS income bracket disaggregation vector is sufficient for our purposes.

Note one peculiarity of the overall income control total. The Internal Revenue Service's \$2,774 billion estimate of Adjusted Gross Income (AGI) is far short of the \$3,766 billion NIPA estimate of Total Personal Income for 1987 (U.S. BEA, 1991). Over half of the gap is attributable to those government transfer payments not included in AGI. Some small portions of the discrepancy are explained by tax-exempt interest and statutory adjustments. We have simply ascribed the remainder to underreporting of income for tax purposes. A further reconciliation of IRS and NIPA data is discussed below, but for now we utilize the former because it provides us with control totals for the various types of income we need for our estimates.

The Total Income Distribution Matrix is presented in Table 2. Again, the results are consistent with a priori expectations about the relative incomes of employees and providers of capital in the various sectors.

The omission of transfer income and the underreporting does not actually pose a serious problem. The reason is that for the purposes of impact analysis it is necessary to distinguish between endogenous income elements and exogenous (autonomous) ones. Here we are interested in those income components that vary with the level of economic activity. That is, only those flows that meet the three-part test of being generated, retained, and spent within the economy should be related to the internal workings of the model. Otherwise, they are autonomous, or transboundary flows (see Rose and Stevens, 1991), and their inclusion would exaggerate policy impacts. Such flows include: most government transfers, all interest on government securities, some government payrolls on the income side, and all purchases of imports and all foreign travel on the consumption side. We omit these transboundary flows from our analysis.

B. Regional Matrices

There are several possible approaches to constructing regional income distribution matrices, distinguished mainly on the basis of data availability. Conventional wisdom is that models based on primary data are the most accurate, in this case translating into the preference for region-specific data on income disbursements. Our original plan was to obtain region-specific data on wage and salary income from the Bureau of the Census in the form of industry/occupation matrices. These

TABLE 2 Total Income Distribution Matrix for the United States, 1987 (million of 1987 dollars)

	Under 5000	5000- 9999	10000- 14999	15000- 19999	20000- 29999	30000- 39999	40000- 49999	50000- 59999	60000- 69999	70000- 89999	Over 90000	Total	
1 Livestock and livestock products	-787	563	590	458	839	869	627	510	351	459	664	5153	1
2 Other agricultural products	-1169	1210	1376	1136	1371	1457	1171	1152	872	1176	3823	13575	2
3 Forestry and fishery products	-51	203	209	184	279	235	186	156	108	144	396	2050	3
4 Agricultural, forestry, and fishery services	418	959	879	835	1576	1090	839	554	326	417	592	8486	4
5 Iron and ferroalloy ores mining	35	-19	-18	-32	44	54	45	34	20	18	10	192	5
6 Nonferrous metal ores mining	88	52	92	86	194	192	170	118	79	88	256	1414	6
7 Coal mining	114	333	508	653	1170	1095	917	599	382	409	1039	7219	7
8 Crude petroleum and natural gas	290	469	735	1109	2572	2811	2552	1793	1327	1545	4238	19442	8
9 Stone and clay mining and quarrying	55	187	287	353	550	492	404	256	167	182	508	3440	9
10 Chemical and fertilizer mineral mining	18	39	62	75	133	121	99	63	41	44	116	812	10
11 New construction	575	5933	8487	11140	18694	17473	14948	9757	6278	6281	13956	113521	11
12 Repair and maintenance construction	-541	2440	3328	4520	5669	5072	4361	2902	1968	2128	6259	38107	12
13 Ordinance and accessories	-131	307	416	509	553	514	330	260	189	222	813	3982	13
14 Food and kindred products	369	2559	3904	4114	7270	7031	5757	4165	2709	2883	8389	49151	14
15 Tobacco manufacturing	-76	253	343	343	451	466	401	354	258	308	1157	4258	15
16 Broad and narrow fabric, yarn & thread mills	260	504	797	667	1844	1763	1317	802	456	394	563	9367	16
17 Miscellaneous textile goods and floor coverings	64	156	246	287	576	525	406	261	156	144	251	3074	17
18 Apparel	167	926	1411	2232	3016	2303	1663	1046	612	563	1152	15092	18
19 Miscellaneous fabricated textile products	22	170	261	455	563	429	325	214	130	125	271	2967	19
20 Lumber and wood products, except containers	208	902	1236	1450	2492	2352	1948	1178	744	732	1756	14999	20
21 Wood containers	80	91	157	161	430	373	271	184	100	81	32	1959	21
22 Household furniture	93	290	486	546	1071	1016	815	498	284	265	506	5869	22
23 Other furniture and fixtures	32	245	394	467	798	799	680	412	253	255	612	4947	23
24 Paper and allied products, except containers	103	991	1455	1333	2782	2605	2018	1539	1012	1053	2793	17684	24
25 Paperboard containers and boxes	106	344	522	548	1110	1018	777	529	325	317	683	6280	25
26 Printing and publishing	325	2240	3309	3093	6467	6080	4939	3830	2648	2942	7692	43565	26
27 Chemicals and selected chemical products	122	891	1356	1630	2758	2954	2593	1653	1148	1183	2718	19004	27
28 Plastics and synthetic materials	45	382	578	694	1150	1210	1039	653	447	459	1068	7724	28
29 Drugs, cleaning and toilet preparations	103	860	1275	1520	2407	2567	2275	1415	1020	1086	2592	17122	29
30 Paints and allied products	24	132	197	233	383	396	339	211	147	154	359	2574	30
31 Petroleum refining and related industries	246	99	227	83	556	712	591	548	348	318	338	4066	31
32 Rubber and miscellaneous plastics products	147	1260	1932	2106	3754	3531	2791	1838	1136	1111	2457	22063	32
33 Leather tanning and finishing	3	17	26	27	48	44	34	22	13	13	31	279	33
34 Footware and other leather products	47	105	172	190	382	349	268	167	96	88	153	2018	34
35 Glass and glass products	107	298	470	528	1067	1011	802	515	304	283	510	5895	35
36 Stone and clay products	11	630	971	1034	1801	1665	1330	869	565	573	1459	10906	36
37 Primary iron and steel manufacturing	206	540	881	1059	2236	2208	1857	1174	722	697	1508	13088	37
38 Primary nonferrous metals manufacturing	172	459	753	886	1841	1788	1474	952	587	562	1116	10590	38
39 Metal containers	25	66	105	131	275	284	253	153	98	102	281	1772	39
40 Heating, plumbing, and fabricated metal products	213	548	952	1094	2273	2218	1842	1193	723	697	1301	13055	40

	Under 5000	5000- 9999	10000- 14999	15000- 19999	20000- 29999	30000- 39999	40000- 49999	50000- 59999	60000- 69999	70000- 89999	Over 90000	Total	
41 Screw machine products and stampings	146	402	658	774	1617	1566	1306	816	503	494	1113	9394	41
42 Other fabricated metal products	216	574	946	1102	2260	2248	1915	1217	768	769	1740	13755	42
43 Engines and turbines	33	108	184	270	509	512	408	319	217	226	579	3364	43
44 Farm and garden machinery	43	116	204	259	506	503	412	294	189	192	425	3141	44
45 Construction and mining machinery	59	167	287	389	759	766	629	470	312	321	753	4912	45
46 Materials handling machinery and equipment	31	82	142	175	363	369	311	222	144	144	294	2276	46
47 Metalworking machinery and equipment	133	357	609	735	1572	1529	1260	870	545	539	1090	9239	47
48 Special industry machinery and equipment	69	183	316	405	837	847	710	516	339	344	734	5300	48
49 General industrial machinery equipment	100	271	471	597	1214	1220	1013	731	475	480	1035	7608	49
50 Miscellaneous machinery, except electrical	113	310	528	635	1326	1265	1024	694	424	417	847	7582	50
51 Office, computing and accounting machines	163	399	696	906	2093	2439	2290	1821	1334	1401	2855	16397	51
52 Service industry machines	73	212	382	503	937	924	735	525	332	337	816	5778	52
53 Electric industrial equipment and apparatus	88	242	441	609	1207	1214	1027	718	475	498	1315	7836	53
54 Household appliances	46	123	226	282	549	534	437	286	177	178	436	3275	54
55 Electric lighting and wiring equipment	66	174	307	393	775	759	629	425	271	277	681	4755	55
56 Radio, TV and communication equipment	168	452	782	1211	2630	2932	2691	2112	1549	1663	4137	20327	56
57 Electronic components and accessories	183	460	825	940	2140	2357	2120	1556	1063	1054	1997	14596	57
58 Miscellaneous electrical machinery and supplies	50	129	234	291	590	599	509	349	226	229	517	3723	58
59 Motor vehicles and equipment	470	1225	2204	2636	5260	5349	4553	2983	1881	1850	4024	32435	59
60 Aircraft and parts	297	801	1362	1882	4119	4732	4407	3279	2340	2432	5356	31007	60
61 Other transportation equipment	150	399	697	860	1756	1776	1517	992	611	592	1158	10508	61
62 Scientific and controlling instruments	415	602	1140	1313	3194	3461	3142	2250	1505	1492	2578	21092	62
63 Optical, ophthalmic and photographic equipment	65	369	583	697	1307	1305	1108	794	549	583	1276	8637	63
64 Miscellaneous manufacturing	129	397	663	749	1418	1373	1114	735	452	448	916	8395	64
65 Transportation & warehousing	1483	3841	6422	7153	16147	14527	11778	7700	4896	4791	10101	88837	65
66 Communications, except radio & TV	471	1290	2212	3346	6396	6982	5906	4018	2676	2819	7446	43563	66
67 Radio and television broadcasting	118	309	440	651	1277	1331	1264	928	726	876	1996	9919	67
68 Private electric, gas, water, and sanitary services	556	1414	2313	3186	7441	6962	6033	3942	2670	2823	7561	44901	68
69 Wholesale and retail trade	9242	16385	23626	29326	60194	61045	52528	37796	25403	26997	54203	396745	69
70 Finance and insurance	2039	4123	7447	9629	22051	22854	20436	16040	10902	11718	25064	152304	70
71 Real estate and rental	557	1748	2546	5206	17980	14060	8631	11337	8995	11518	48337	130913	71
72 Hotels; personal and repair services (except auto)	862	3009	4093	3923	7764	6913	5654	3763	2524	2584	5639	46728	72
73 Business services	305	9435	13989	13561	29561	30642	29616	19803	14386	15436	35146	211879	73
74 Eating and drinking places	2203	7789	8346	7085	12328	10470	7857	4951	3677	3759	8394	76860	74
75 Automobile repair and services	244	1404	1962	1699	3566	3523	3349	1781	1173	1251	3578	23043	75
76 Amusements	357	1403	1752	1825	3500	3258	3058	1931	1441	1597	3622	23744	76
77 Health, educational, and social services, etc	167	8524	11966	12127	26557	27150	26804	17935	13716	15530	36446	196922	77
78 Federal Government enterprises	261	789	1305	1598	3628	3890	3614	2661	1888	2081	4265	25980	78
79 State and local government enterprises	110	994	1477	1526	3504	3404	3216	2083	1492	1540	3252	22599	79
80 Scrap, used and secondhand goods	0	0	0	0	0	0	0	0	0	0	0	0	80
81 Household industry	1825	1129	1532	1534	2444	2761	3665	3920	3574	6727	96849	125960	81
82 Government	22292	16218	24241	28817	61925	62979	56276	39381	26188	26042	51064	370839	82
83 Total	3460	116993	171921	198741	408650	402502	350410	249477	172158	185560	513954	2773825	83

would then be adapted to wage and salary income distribution matrices by the methods briefly noted above for the U.S. matrix and discussed in detail in Rose et al. (1988). Unfortunately, the regional industry/occupation matrices will not be available until fall 1993. An example of an algorithm to generate wage and salary distribution matrices, primarily from a region-specific data, is presented in Figure 2.

A similar strategy was considered for capital-related income, though realistically it is difficult to obtain such data on a multi-sector basis for this income category. Fortunately, some capital-related income types are sector-specific (royalties, rents, personal sales and capital assets) and at least state-specific data are available from the IRS. The need for data on capital-related income is obviated to a great extent, however, by the small role of this income category in general, typically accounting for less than 15% of total personal income, and for our case study in particular, since WAPA is a quasi-government entity that does not make dividend payments nor region-specific interest payments (see also Section VII below).

Thus, we were forced to adopt a top-down approach, analogous in general to the way regional I-O tables are scaled-down versions of national tables. An overview of such an algorithm is presented in Figure 3. This approach does scale down the national tables to conform to regional control totals, but with the national structure of income distribution as the first approximation of the corresponding regional structure. Again, an RAS balancing imparts some regional uniqueness to the matrices.

More specifically, the regional control totals are as follows. IMPLAN (primary) data were used as sectoral control totals for wage/salary income and as the overall income control for each region. Income bracket control totals are adapted from IRS data for states (IRS 1990; 1993). That is, the state bracket proportions of total income (or wage/salary income) are multiplied by regional IMPLAN personal income (or wage/salary income) levels.

An example of a wage/salary distribution matrix for one of our regions is presented in Table 3. Note that for expository purposes the matrix is in transposed form. Also, the matrix is for

FIGURE 2. CREATION OF REGIONAL INCOME DISTRIBUTION MATRICES
(BOTTOM-UP VERSION)

WAGE AND SALARY MATRIX

FIGURE 3. CREATION OF REGIONAL INCOME DISTRIBUTION MATRICES
(TOP-DOWN VERSION)

TABLE 3

INFL fact P Growth Combined	1.28	COLORADO						in 1994 dollars		YEAR =		1993		Total
	1.157	(considering inflation from 1993 and growth from 1987)												
	1.49	NEW IDM												
Bracket M	\$5,000	5000- 9999	10000- 14999	15000- 19999	20000- 29999	30000- 39999	40000- 49999	50000- 59999	60000- 69999	70000- 89999	Ov 90000			
1 Livestock	3	6	7	6	13	11	9	7	6	8	18	95		
2 Other agri	1	2	3	2	4	4	3	3	2	3	6	33		
3 Forestry a	0	0	0	0	0	0	0	0	0	0	0	0		
4 Agricultura	3	8	9	8	16	14	12	9	8	11	23	121		
5 Iron and fe	0	0	0	0	1	1	1	1	1	1	1	6		
6 Nonferrou	1	2	3	5	12	14	14	14	12	17	25	120		
7 Coal minin	0	1	1	1	3	3	3	3	3	4	5	26		
8 Crude petr	1	4	5	7	20	26	28	29	29	42	83	274		
9 Stone and	0	1	1	1	3	4	1	3	3	4	5	29		
10 Chemical	0	0	0	0	0	0	0	0	0	0	0	0		
11 New const	11	29	43	56	150	162	162	153	136	179	267	1346		
12 Repair an	5	15	22	29	77	83	83	79	70	92	137	692		
13 Ordinance	7	19	28	41	101	112	116	112	98	134	205	973		
14 Food and	7	18	26	37	90	95	95	88	74	96	133	759		
15 Tobacco	0	0	0	0	0	0	0	0	0	0	0	0		
16 Broad and	0	0	0	0	0	0	0	0	0	0	0	1		
17 Miscellane	0	0	0	0	0	0	0	0	0	0	0	2		
18 Apparel	0	1	1	1	3	3	3	3	2	3	3	24		
19 Miscellane	0	1	1	1	3	3	3	3	2	3	4	24		
20 Lumber an	1	2	3	3	8	9	8	8	6	8	11	67		
21 Wood cont	0	0	0	0	0	0	0	0	0	0	0	0		
22 Household	0	0	0	1	1	1	1	1	1	1	2	10		
23 Other furni	0	1	1	2	5	6	6	5	4	6	8	45		
24 Paper and	0	0	0	0	1	1	1	1	1	1	2	11		
25 Paperboar	0	1	1	2	4	4	4	4	3	4	5	31		
26 Printing an	5	12	17	23	58	63	62	58	51	70	126	545		
27 Chemicals	3	7	10	15	40	46	49	48	44	62	108	433		
28 Plastics an	0	0	0	0	0	0	0	0	0	0	1	3		
29 Drugs, cle	0	1	1	2	5	6	6	6	5	7	14	53		
30 Paints and	0	0	0	0	1	1	1	1	0	1	1	5		
31 Petroleum	0	1	1	1	3	3	4	4	3	5	8	31		
32 Rubber an	1	2	3	5	11	12	12	11	9	12	16	93		
33 Leather ta	0	0	0	0	0	0	0	0	0	0	0	1		
34 Footware	0	0	0	0	1	1	1	1	1	1	1	5		
35 Glass and	0	1	1	2	4	4	4	4	3	4	6	34		
36 Stone and	2	4	5	8	20	23	23	21	17	22	31	176		
37 Primary iro	1	3	4	6	15	16	16	15	13	16	22	126		
38 Primary no	0	0	0	1	2	2	2	2	1	2	2	14		
39 Metal cont	1	3	5	6	16	17	17	16	13	17	23	134		
40 Heating, pl	1	2	3	4	11	11	12	11	9	12	18	94		
41 Screw ma	0	0	0	1	1	2	2	1	1	2	2	12		
42 Other fabri	1	3	4	6	15	15	15	15	12	16	24	126		
43 Engines a	0	1	2	3	6	7	8	7	7	9	15	65		
44 Farm and	0	0	0	1	1	1	1	1	1	2	2	12		
45 Construct	0	0	1	1	2	2	2	2	2	3	4	19		
46 Materials h	0	0	0	1	1	2	2	2	1	2	3	14		
47 Metalworki	0	1	1	2	5	6	6	6	5	7	10	50		
48 Special in	0	1	1	2	4	5	5	5	4	6	9	41		
49 General in	0	1	2	2	6	7	7	7	6	8	13	59		
50 Miscellane	1	2	3	4	10	11	11	11	9	12	18	92		
51 Office, co	7	18	26	39	103	129	146	151	149	226	455	1448		
52 Service in	0	0	1	1	2	2	2	2	2	3	4	19		
53 Electric in	2	6	9	14	33	36	37	36	32	43	66	313		
54 Household	0	1	1	2	4	4	4	4	3	4	6	33		
55 Electric lig	0	0	0	0	1	1	1	1	1	1	1	5		
56 Radio,TV	1	3	5	7	19	23	26	27	26	39	75	250		
57 Electronic	2	5	7	11	27	31	34	34	32	46	81	309		
58 Miscellane	1	2	2	4	9	10	10	10	9	12	18	85		
59 Motor vehi	0	1	1	2	4	4	4	4	3	4	6	33		
60 Aircraft an	0	1	2	3	7	9	10	10	10	14	26	93		
61 Other tran	0	0	0	0	1	1	1	1	1	1	2	8		
62 Scientific a	3	8	12	18	46	53	57	57	52	75	130	513		
63 Optical, op	1	3	4	6	16	18	19	18	17	24	44	172		
64 Miscellane	1	2	3	4	9	10	10	9	8	11	15	81		
65 Transporta	8	17	23	34	86	98	96	90	75	98	142	767		
66 Communic	4	11	15	24	67	79	83	82	75	105	165	708		
67 Radio and	0	1	1	2	5	6	6	6	6	9	22	64		
68 Electric Se	1	2	3	5	14	16	17	17	15	22	35	148		
68 Gas & San	1	2	2	3	10	11	12	12	11	15	24	101		
69 Wholesale	48	108	136	171	451	489	505	490	440	625	1160	4622		
70 Finance an	12	28	37	58	154	179	190	189	180	267	506	1801		
71 Real estat	3	8	11	15	38	40	41	39	36	51	96	380		
72 Hotels, per	6	15	21	25	60	58	56	51	45	60	99	496		
73 Business s	24	62	88	122	316	358	375	369	352	515	1009	3589		
74 Eating and	18	45	61	56	122	97	92	82	66	85	155	877		
75 Automobil	2	5	8	10	28	31	31	29	26	34	49	253		
76 Amuseme	3	8	11	12	30	30	29	27	26	35	73	285		
77 Health, ed	21	49	67	87	241	280	291	284	277	409	914	2919		
78 Federal G	3	9	12	18	48	58	62	61	59	86	179	594		
79 State and l	1	4	6	8	22	26	26	25	23	32	60	234		
82 Governme	64	155	212	285	721	784	798	766	697	969	1727	7178		
	300	736	1009	1343	3450	3792	3893	3760	3434	4833	8759	35308		

households and incorporates the occupation/income bridging done at the national level, as described in the previous sub-section.

Also, in order to translate our income distribution impacts into the Individual Impact Matrices, we need to construct matrices of the number of households in each income bracket. This is a simple procedure in which we first divide total income in each cell of Table 2 by its corresponding bracket mean. This preliminary matrix is then balanced against column control totals (sectoral employment levels from IMPLAN) and row control totals (proportions of tax returns from IRS, 1990 and 1993). An example of such a regional household matrix is presented as Table 4.

TABLE 4

1 48501 35307 5

COLORADO
1993 NEW E D M (MOVEMENTS * EMPLOYMENT GROWTH)

Rate Emp Growth 1 13

	Under 5000	5000- 9999	10000- 14999	15000- 19999	20000- 29999	30000- 39999	40000- 49999	50000- 59999	60000- 69999	70000- 89999	Over 90000	Total
1 Livestock	1242	921	657	386	584	361	236	151	107	121	121	4887
2 Other agri	429	318	227	134	202	125	81	52	37	42	42	1688
3 Forestry a	3	2	1	1	1	1	1	0	0	0	0	10
4 Agricultura	1587	1178	840	494	747	461	301	193	136	154	155	6248
5 Iron and fe	20	17	15	15	29	24	19	15	11	12	10	186
6 Nonferrou	379	328	285	294	555	456	362	286	216	239	190	3591
7 Coal minin	92	78	67	69	128	105	82	64	47	51	38	823
8 Crude petr	650	532	437	473	917	829	706	584	500	603	605	6846
9 Stone and	115	94	77	82	147	119	91	69	50	53	39	936
10 Chemical	1	1	1	1	1	1	1	1	0	0	0	7
11 New const	4837	4325	3873	3601	6766	5230	4056	3139	2370	2570	2002	42768
12 Repair an	2487	2224	1992	1852	3479	2690	2086	1614	1219	1321	1030	21994
13 Ordinance	3085	2791	2536	2630	4590	3635	2898	2297	1709	1927	1541	29638
14 Food and	3205	2739	2351	2376	4081	3083	2373	1818	1289	1381	1004	25698
15 Tobacco	0	0	0	0	0	0	0	0	0	0	0	0
16 Broad and	4	4	4	3	6	4	3	2	2	2	1	35
17 Miscellane	10	9	8	8	14	10	8	6	4	4	3	83
18 Apparel	103	96	89	88	149	106	78	57	37	38	24	865
19 Miscellane	101	92	83	84	143	102	77	58	40	42	29	851
20 Lumber an	350	297	252	219	374	280	210	157	109	117	84	2450
21 Wood cont	0	0	0	0	0	0	0	0	0	0	0	3
22 Household	39	35	31	33	56	42	32	25	17	18	12	340
23 Other furni	164	145	129	138	237	180	139	108	78	83	60	1461
24 Paper and	42	37	33	32	57	43	33	25	18	20	15	356
25 Paperboar	136	120	106	101	175	130	98	74	51	55	40	1085
26 Printing an	2160	1813	1525	1478	2648	2028	1563	1201	890	1002	912	17221
27 Chemicals	1267	1090	943	972	1798	1502	1224	991	774	895	799	12254
28 Plastics an	9	8	7	7	13	11	8	7	5	6	5	85
29 Drugs, cle	176	147	123	123	224	179	145	117	93	107	102	1538
30 Paints and	19	15	13	13	23	18	14	11	9	10	9	154
31 Petroleum	90	77	67	70	129	110	89	72	56	65	56	882
32 Rubber an	362	326	295	297	512	380	291	223	156	168	122	3131
33 Leather la	3	3	3	3	4	3	2	2	1	1	1	27
34 Footware	22	20	18	18	31	22	17	13	9	9	6	185
35 Glass and	139	123	110	108	186	140	108	83	58	63	45	1163
36 Stone and	770	615	490	527	924	746	566	428	301	318	235	5920
37 Primary iro	466	411	365	371	658	513	398	307	219	237	170	4115
38 Primary no	49	44	40	41	71	54	42	33	23	25	19	441
39 Metal cont	523	461	409	404	721	554	425	325	228	246	176	4472
40 Heating pl	334	293	260	280	484	370	289	224	163	178	134	3008
41 Screw ma	46	42	38	39	67	52	39	30	21	23	16	414
42 Other fabri	477	423	376	387	666	500	387	298	214	234	178	4140
43 Engines a	193	171	153	165	291	235	189	151	114	130	109	1902
44 Farm and	40	35	30	33	58	44	35	28	21	23	19	366
45 Constructi	60	52	46	49	87	69	55	44	34	38	32	566
46 Materials h	44	38	33	36	64	51	41	32	25	28	23	415
47 Metalworki	164	145	130	138	240	195	153	119	88	98	77	1547
48 Special in	128	111	97	105	186	151	121	96	73	83	70	1222
49 General in	185	162	142	155	271	215	172	137	103	117	96	1755
50 Miscellane	311	279	252	268	464	367	285	220	160	175	132	2912
51 Office co	3241	2733	2320	2523	4645	4179	3631	3100	2597	3226	3314	35510
52 Service in	63	56	49	56	96	72	57	45	33	36	27	589
53 Electric in	994	872	772	880	1507	1155	928	741	557	620	491	9518
54 Household	120	106	94	107	180	132	103	81	58	62	44	1087
55 Electric lig	19	17	15	16	28	21	16	13	9	10	8	170
56 Radio TV	579	498	432	469	847	748	645	547	449	554	547	6315
57 Electronic	802	702	619	689	1218	1013	847	699	553	654	600	8397
58 Miscellane	277	241	211	239	410	313	251	201	151	168	134	2597
59 Motor vehi	112	99	88	99	169	128	101	80	59	64	49	1046
60 Aircraft an	218	193	172	182	331	294	248	207	166	203	195	2409
61 Other tran	27	24	21	23	42	32	26	20	15	17	13	259
62 Scientific a	1462	1252	1081	1193	2108	1720	1420	1161	913	1069	962	14341
63 Optical op	535	459	396	414	739	597	477	380	296	341	319	4952
64 Miscellane	302	263	230	245	421	312	244	190	139	151	115	2613
65 Transporta	3433	2665	2053	2198	3899	3168	2420	1841	1308	1408	1075	25457
66 Communic	1967	1623	1346	1521	3021	2544	2075	1679	1299	1499	1231	19806
67 Radio and	195	158	127	114	229	186	150	121	104	125	154	1662
68 Private ele	427	362	310	328	634	532	432	349	270	310	258	4212
69 Wholesale	290	246	211	223	431	362	294	237	183	210	175	2863
70 Finance an	21945	16625	12329	11066	20416	15801	12646	10064	7648	8950	8399	145893
71 Real estat	5561	4318	3333	3742	6971	5606	4763	3885	3135	3825	3661	48663
72 Hotels per	1557	1272	1037	960	1740	1306	1023	801	631	728	606	11751
73 Business s	2851	2326	1870	1607	2744	1862	1401	1053	775	890	734	18987
74 Eating and	11048	9351	7944	7918	14297	11554	9377	7577	6125	7364	7349	99664
75 Automobi	8272	6818	5565	5641	9575	8141	7307	6886	5143	6226	5133	40505
76 Amuseme	1006	831	687	667	1278	966	777	606	444	465	366	8138
77 Health ed	1517	1233	994	775	1380	970	738	562	445	504	524	9641
78 Federal G	9356	7522	6025	5606	10896	9039	7275	5844	4817	5849	6518	28742
79 State and l	1589	1307	1079	1138	2164	1860	1537	1251	1022	1236	1281	15475
80 Scrap use	676	618	566	548	976	832	649	507	409	466	439	6585
82 Governme	28937	23570	19172	18405	32709	25347	20003	15740	12121	13896	12661	222594
83 Total	136704	111640	91208	86791	156347	122533	97492	77274	59759	65247	64061	1072854

FIGURE 4. UPDATING INCOME DISTRIBUTION MATRICES
(for income growth and possibly inflation)

VI. UPDATING MATRICES

Data used to construct any model used for projections or simulations is by necessity from prior years. Comparability, however, requires adjustment for inflation and economic growth. Specifically, in our case, IMPLAN input-output data and regional income control totals are in 1990 terms, while nearly all of our income distribution data are from 1987. Our projections on the other hand, are for the years 1993, 2000, and 2005, all in 1994 constant dollars.

In many contexts, all that would be required would be the application of a composite inflation and growth index to the model for its results. However, in the case of distributional analysis this may be problematic, since it is desirable to maintain a standard set of income brackets over time for purposes of comparison. The problem is thus to identify the number of people who move out of each fixed bracket due to inflation or growth in incomes.

To undertake this adjustment properly, knowledge of the entire income distribution is required. Researchers have long found a regularity in income receipts in the form of what is referred to as the Pareto distribution, which exhibits a strong skewness to the left, thusly:

$$y = ax^{-b}$$

In fact, our analysis of IRS data reveals an almost perfect regularity for the downward sloping portion of the distribution in the cases of total and of wage and salary incomes. These are fitted in terms of the following general equation:

$$y = ae^{-bx}$$

The overall algorithm for our updating methodology is presented in Figure 4. Plots of observations and parameter estimates for one sample case are presented in Figure 5; also presented in this figure is a numerical example of the shift in income to higher brackets.* This is complicated because it requires estimating areas under the curve and also because, for large index adjustments, income recipients from a given bracket will not simply move to the next higher one, but to

*The economic indicators used to update the matrices are presented in Appendix B.

subsequent brackets. The key to understanding the algorithm is the notion of a "cutting point," the upper bound of each bracket divided by the index adjustment.

One simplifying assumption of the analysis thus far with respect to the growth factor. The same factor, for example, 48.5% between 1987 and 1993 for Colorado, is applied to all income brackets. In fact, recent studies have shown that the income of those in higher brackets grew considerably more than those in lower ones. Also, there are cases of backsliding due to demographic features (e.g., divorce, shifts in the age composition of the population). For lack of better data, especially lack of region-specific data, we are confident that we have used the best possible methodology and that lack of accuracy in this consideration does not significantly affect the results.*

Note that we also perform a similar adjustment for the number of households corresponding to the income shifted. In this case, however, we simply apply the growth factor and not the inflation factor. Also, the growth factor refers to employment, rather than income, growth. An algorithm describing these computations is presented in Figure 6.

*Note there is little mention in literature of how adjustments to income distributions are made for growth and inflation. Moreover, in the few cases where these adjustments are undertaken, the predominant approach is some form of linear extrapolation, but this explicitly assumes a rectangular income distribution and overstates the amount of income that should be shifted upward (compare the means of our Pareto distribution with the arithmetic bracket means, especially for upper-income groups).

FIGURE 5. EXAMPLE OF AN UPDATED WAGE AND SALARY DISTRIBUTION

*Equal Size Brackets

$$Y = (0.467561) * e^{(-4.477E-5 * X)}$$

RESULTS FROM REGRESSION

MEAN	FREQ.	LN FREQ	[LN FREQ]	[FREQ.]
5,000	0.3078	-1.1783692	-0.9840919	0.3738
15,000	0.2377	-1.4366236	-1.43182334	0.2389
25,000	0.1559	-1.8584754	-1.87955478	0.1527
35,000	0.1093	-2.2134945	-2.32728622	0.0976
45,000	0.0741	-2.6027443	-2.77501766	0.0623
62,500	0.0306	-3.4880377	-3.55854768	0.0285
87,500	0.0078	-4.8564532	-4.67787628	0.0093
150,000	0.0014	-6.5529584	-7.47619778	0.0006
350,000	0.0001	-8.9108328	-16.4308266	0.0000
750,000	0.0000	-11.162508	-34.3400842	0.0000

* Without last three brackets

Regression Output:

Constant	-0.7602	$e^{(-.76)} =$	0.4676
Std Err of Y Est	0.1534		
R Squared	0.9881		
No. of Observations	7		
Degrees of Freedom	5		
X Coefficient(s)	-4.48E-05		
Std Err of Coef.	2.2E-06		

DISTRIBUTION WITH EQUAL BRACKETS

(WITHOUT LAST THREE BRACKETS)

COLORADO 1993 Inflation 1 284 Employment Growth 1 13
Growth 1 157
Combined Growth Rate = 1 485 Combined Rate =

CP = Cutting Point
CP = Bracket Maximum / Combined Growth rate

Formulas

Income

$$\int_{x2}^{x1} x F(x) dx = ((a/b)[x1 e^{(b x1)} - x2 e^{(b x2)}] - (a/b^2) [e^{(b x1)} - e^{(b x2)}])$$

Employment

$$\int_{x2}^{x1} F(x) dx = (a/b) [e^{(b x1)} - e^{(b x2)}]$$

Curve Fitting Formula $Y = a \cdot e^{(b X)}$ LN(4573) -0.7822
 $a = 0.45738$ 0.45738
 $b = -4.34E-05$ -4.34E-05

Y = Frequency
X = Income
 $Y = (0.45738) \cdot e^{(-4.34E-5 \cdot X)}$

INCOME

	1	2	3	4	5	6	7	8	9	10	11 TOTAL
Bracket Maximum	0	5000	10000	15000	20000	30000	40000	50000	60000	70000	90000
Area of Bracket (L to U)	5E+06	1E+07	2E+07	2E+07	4E+07	3E+07	3E+07	2E+07	2E+07	2E+07	2E+07
Bracket Maximum	5,000	10,000	15,000	20,000	30,000	40,000	50,000	60,000	70,000	90,000	90,000
Cutting Point	3,367	6,734	10,101	15,000	20,202	30,000	40,000	50,000	60,000	70,000	90,000
Total Area Moved (CP to U)	3E+06	9E+06	2E+07	2E+07	4E+07	3E+07	3E+07	2E+07	2E+07	2E+07	-2E+08
Total Proportion to Distrib	52%	71%	98%	100%	98%	100%	100%	100%	100%	100%	-913%
New Extreme Right Limit	7,425	14,850	22,275	29,700	44,550	59,400	74,250	89,101	103,951	133,651	
New Extreme Left Limit	5,000	10,000	15,000	22,275	30,000	44,550	59,400	74,250	89,101	103,951	133,651
Adjacent Bracket 1	1	1	1	1	1	1	1	0	1	1	0
Adjacent Bracket 2	0	0	1	0	1	1	1	1	1	0	0
Adjacent Bracket 3	0	0	0	0	0	0	1	0	0	0	0
Adjacent Bracket 4	0	0	0	0	0	0	0	0	0	0	0
Adjacent Bracket 5	0	0	0	0	0	0	0	0	0	0	0
# of Brackets to Spread	1	1	2	1	2	2	3	1	2	1	0
First Move up lim=	5,000	10,000	13,468	20,000	26,836	33,670	40,404	0	60,606	90,000	0
dw lim=	3,367	6,734	10,101	15,000	20,202	30,000	40,000	0	60,000	70,000	0
Area Moved (CP to U)	2.8E+06	8.7E+06	1.1E+07	1.9E+07	2.6E+07	1.3E+07	1.3E+06	0.0E+00	1.2E+06	2.3E+07	0.0E+00
Proportion 1 move	52.5%	70.6%	85.7%	100.0%	87.8%	38.4%	4.4%	0.0%	8.9%	100.0%	0.0%
up lim moved	7425.05	14850.1	20000	29700.2	40000	50000	60000	0	90000	133651	0
dw lim moved	5000	10000	15000	22275.1	30000	44550.3	59400.4	0	89100.6	103951	0
Second Move up lim=	0	0	15,000	0	30,000	40,000	47,138	60,000	70,000	0	0
dw lim=	0	0	13,468	0	26,936	33,670	40,404	50,000	60,606	0	0
Area Moved (CP to U)	0.0E+00	0.0E+00	5.4E+06	0.0E+00	1.2E+07	2.2E+07	2.0E+07	2.3E+07	1.7E+07	0.0E+00	0.0E+00
Proportion 2 move	0.0%	0.0%	32.5%	0.0%	30.2%	61.6%	69.1%	100.0%	93.1%	0.0%	0.0%
up lim moved	0	0	22275	0	44550	59400	70000	89101	103951	0	0
dw lim moved	0	0	20000	0	40000	50000	60000	74250	90000	0	0
Third Move up lim=	0	0	0	0	0	0	50,000	0	0	0	0
dw lim=	0	0	0	0	0	0	47,138	0	0	0	0
Area Moved (CP to U)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.7E+06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Proportion 3 move	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	26.5%	0.0%	0.0%	0.0%	0.0%
up lim moved	0	0	0	0	0	0	74250	0	0	0	0
dw lim moved	0	0	0	0	0	0	70000	0	0	0	0
Fourth Move up lim=	0	0	0	0	0	0	0	0	0	0	0
dw lim=	0	0	0	0	0	0	0	0	0	0	0
Area Moved (CP to U)	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
Proportion 4 move	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
up lim moved	0	0	0	0	0	0	0	0	0	0	0
dw lim moved	0	0	0	0	0	0	0	0	0	0	0
Fifth Move up lim=	0	0	0	0	0	0	0	0	0	0	0
dw lim=	0	0	0	0	0	0	0	0	0	0	0
Area Moved (CP to U)	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00	0E+00
Proportion 5 move	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
up lim moved	0	0	0	0	0	0	0	0	0	0	0
dw lim moved	0	0	0	0	0	0	0	0	0	0	0
	52%	71%	98%	100%	98%	100%	100%	100%	100%	100%	0%
	52%	71%	98%	100%	98%	100%	100%	100%	100%	100%	-913%

EMPLOYMENT

(a/b) [@exp (b x1) - @exp (b x2)]

Bracket Minimum	0	5000	10000	15000	20000	30000	40000	50000	60000	70000	80000
Bracket Maximum	5000	10000	15000	20000	30000	40000	50000	60000	70000	80000	2000000
Area of Bracket (L to U)	2055 81	1854 81	1332 03	1072 2	1557 77	1009 33	853 976	423 731	274 548	293 148	212 118
Mean Frequency	0.41	0.33	0.27	0.21	0.16	0.10	0.07	0.04	0.03	0.01	0.00
Mean Income	2455	7455	12455	17455	24819	34819	44819	54819	64819	79281	191792
Cutting Point	3367	6734	10101	15000	20202	30000	40000	50000	60000	70000	80000
Right Limit	5000	10000	15000	20000	30000	40000	50000	60000	70000	80000	2000000
Total Area to Move	623 039	1039 85	1302 18	1072 2	1519 18	1009 33	853 976	423 731	274 548	293 148	212 118
Total Proportion to Move	30%	63%	98%	100%	98%	100%	100%	100%	100%	100%	100%
First Move up lim=	5,000	10,000	13,468	20,000	26,936	33,870	40,404	0	60,606	90,000	0
dw lim=	3,367	6,734	10,101	15,000	20,202	30,000	40,000	0	60,000	70,000	0
Area Moved (CP to U)	623	1040	924	1072	1111	422	32	0	20	293	0
Proportion 1 move	30.3%	62.8%	69.4%	100.0%	71.3%	41.8%	4.9%	0.0%	7.4%	100.0%	0.0%
Second Move up lim=	0	0	15,000	0	30,000	40,000	47,138	60,000	70,000	0	0
dw lim=	0	0	13,468	0	26,936	33,870	40,404	50,000	60,606	0	0
Area Moved (CP to U)	0	0	378	0	408	587	463	424	254	0	0
Proportion 2 move	0.0%	0.0%	28.4%	0.0%	26.2%	58.2%	70.7%	100.0%	92.6%	0.0%	0.0%
Third Move up lim=	0	0	0	0	0	0	50,000	0	0	0	0
dw lim=	0	0	0	0	0	0	47,138	0	0	0	0
Area Moved (CP to U)	0	0	0	0	0	0	159	0	0	0	0
Proportion 3 move	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.3%	0.0%	0.0%	0.0%	0.0%
Fourth Move up lim=	0	0	0	0	0	0	0	0	0	0	0
dw lim=	0	0	0	0	0	0	0	0	0	0	0
Area Moved (CP to U)	0	0	0	0	0	0	0	0	0	0	0
Proportion 4 move	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fifth Move up lim=	0	0	0	0	0	0	0	0	0	0	0
dw lim=	0	0	0	0	0	0	0	0	0	0	0
Area Moved (CP to U)	0	0	0	0	0	0	0	0	0	0	0
Proportion 5 move	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	30%	63%	98%	100%	98%	100%	100%	100%	100%	100%	0%
	30%	63%	98%	100%	98%	100%	100%	100%	100%	100%	100%

FIGURE 6. UPDATING EMPLOYMENT DISTRIBUTION MATRICES
(for employment growth)

VII. APPLICATION OF THE METHODOLOGY

A. Underlying Assumptions

In addition to the usual assumptions underlying the input-output model (e.g., its linearity and static nature), there are assumptions relating to its application to income distribution analysis. Straightforward multiplication of the income distribution matrix by a diagonalized matrix of changes in gross output of all sectors (stemming from a change in final demand for electricity) results in a matrix of changes in income from all sectors to all income classes in proportion to the base multisector income distribution matrix. Thus, if there is a five percent decrease in wage and salary income generated by a given sector, each recipient will receive five percent less in wages and salaries. The real world counterpart of this result would be a decision to decrease everyone's hours (including less overtime work) for all current employees. Alternatively, a firm could enact layoffs or terminations of employees, which would impact fewer people but to a great extent in each case. This requires a different computation than the case above, along the following lines:

$$n_{kri} = \Delta Y_i / \bar{v}_{ki} \quad (6)$$

where $\bar{v}_{ki}$ refers to the total annual (wage and salary) earnings of an employee in income bracket k in industry i , and the other variables are defined as before.

Which of the two outcomes is more likely is an empirical question. It is likely to depend on such factors as the strength of unions and size of the unemployed labor pool (especially for cases of income increases). Obviously this would differ by region and to some extent by sector.

To deal with this matter, sensitivity analyses might be performed for three cases:

- All changes in terms of working hours for currently employed
- All changes in employment levels
- 50/50 split.

A similar reality check is needed for the standard computation of the impacts on capital-related income. In this case, the adjustment is for transboundary flows, or leakages, of gains or losses outside the region (see, e.g., Rose and Stevens, 1991). These flows stem from external, or

absentee, ownership of capital, such as real estate (rental and farm income), equity ownership (dividends), and debt (interest).

The standard input-output computation implicitly assumes that capital-income received by region's residents is generated in the region itself, and, to a lesser extent, that capital-related income generated in a region goes to the region's residents.* Again this is an empirical issue and sensitivity analysis techniques might be applied as follows:

- Upper bound of capital-related income retention
- Lower bound (assumed to be zero)
- A mid-range estimate

Performing the sensitivity tests for labor and capital income together yield nine possible combinations in general (see the chart below). Fortunately, our analysis is simplified by institutional characteristics and the small magnitude of electricity price changes. First, WAPA is a government-owned enterprise. Its capital stock, primarily transmission lines and substations, was accumulated by borrowing from the Federal Government. Interest payments are to the government and not affected by the level of economic activity. Payments of other types of capital-related income, such as rents, royalties, and sales of capital assets, are zero or negligible. Indirect effects on capital-related income are likely to be small as well and hence will not be modeled in this report.

On the employment side, labor input requirements at WAPA are not likely to be effected much by changes of a few percentage points in electricity production and transmission. The impacts in nearly all other sectors are likely to be so low as not to cause any significant changes in employment levels, or wage/salary income payments in general.

We will model one alternative case to test the sensitivity of our results to these assumptions. This will be Case 7, in which we examine the implications of assigning all wage and salary increases (decreases) to newly-hired(fired) workers. This will result in some large gains or losses to

*This happens to a lesser extent, in that IMPLAN and most other I-O systems match income flows to control totals as follows: all wage and salary income is retained within the region and the difference between the control total and the wage/salary component is capital-related income retained, typically not equal to all capital-related income generated in the region.

individuals, in the area of tens of thousands of dollars, though these will be highly-concentrated. Note that Case 7 is an upper-bound on these estimates, and is somewhat unlikely in that an enterprise like a power marketing company has significant flexibility in its labor input for small changes in output in both the short run and the long run.

CHART A. SENSITIVITY ANALYSIS

Wages & Salaries (% of new employees)	Property Income (% retained within region)		
	0	50	100
0	①	2	③
mid-range	4	⑤	6
upper-bound	⑦	8	⑨

B. Electricity Expenditure Changes

The environmental policies confronting WAPA will have the effect of changing stream flows and hence the electricity generation. Members of the study team have translated these variants into a set of alternative scenarios (see Appendix B). We will examine distributional impacts of eleven of them. The scenarios are distinguished according to percentage expenditure changes in final demand for electricity and are presented in Table 5 for the three regions projected to realize the largest impacts. For example, for the Colorado Metro Region, the percentage changes range from less 0.05%, in several cases, to 2.7% for scenario 1C in 1993. The percentage changes for the Utah Metro and

TABLE 5. ELECTRICITY DIRECT OUTPUT CHANGES FOR ALTERNATIVE WAPA SCENARIOS
(percentage change from nominal baseline)

Scenario	Colorado Metro			Utah Metro			Great Basin		
	1993	2000	2008	1993	2000	2008	1993	2000	2008
1B	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
1C	2.7	1.4	0.9	1.6	0.8	0.5	1.1	0.7	0.5
3A	-0.9	-0.4	0.1	0.8	0.7	0.9	-0.0 ^a	0.1	0.3
3B	-0.0	0.1	0.6	1.3	1.0	1.1	0.3	0.3	0.4
3C	1.2	0.7	0.9	2.0	1.4	1.3	0.8	0.6	0.8
5A	-0.9	-0.0 ^a	0.7	0.2	0.4	2.0	3.7	3.5	4.3
5B	-0.6	0.2	0.8	0.3	0.4	2.0	1.5	1.4	2.1
5C	0.2	0.5	0.9	1.0	1.2	3.3	2.0	1.6	2.2
6A	0.1	-0.3	-0.0 ^a	0.5	-0.2	-0.3	1.5	0.6	0.4
6B	0.9	-0.1	-0.0 ^a	1.0	0.1	-0.3	1.9	0.8	0.4
6C	1.8	0.2	0.0 ^a	1.6	0.6	0.4	2.4	1.0	0.5

^aLess than 0.05%

Great Basin Regions also cover a broad range with the largest impact being a 4.3% increase in electricity sales in the Great Basin Region in the year 2008.

Note that the overall levels of income changes in our analysis differ from the electricity output changes just discussed. The figures in Table 1 represent only partial equilibrium effects. The input-output model first translates these into general equilibrium changes in output and income. For example, electricity production is increased from say, 3.0% to 3.2%, to account for the electricity used to produce direct and indirect inputs to electricity generation itself. A similar multiplier effect takes place for income, but not just for additions to income in the electricity sector, but rather for all sectors.

Note, a key assumption must also be invoked at this stage of the analysis. This relates to translating demand-side changes to supply-side changes. For example, if a 5% increase in electricity demand is projected for the Nevada Metro area, we must connect this to changes in direct and indirect production levels and identify the region in which these take place. The environmental policies affecting stream flows are confined to the areas of the Colorado and Green Rivers in Utah and Wyoming. However, this relates to power production itself, which is operated by the Bureau of Reclamation, the U.S. Army Corps of Engineers, and the International Boundary and Water Commission. Again, WAPA is a power marketing enterprise. Its transmission lines and substations are found in areas where consumers reside, and it is not unwarranted to assume these facilities and the direct operation and maintenance of them are proportional to power flows into these regions. At the same time, some of the operating costs are associated with headquarters activities (management, billing, etc.), which is centrally located. For example, the pertinent WAPA headquarters office for the Nevada Metro Region is in Phoenix, Arizona. For lack of data, we will assume a one-to-one correspondence between demand changes and supply changes on a regional basis, though this will miss some of the headquarter effects. Also, it will miss some of the backward linkages on hydropower production. Even though this production is not attributable to WAPA, it will result in income changes flowing from the federal government agencies operating the hydroelectric facilities. Carrying through our previous example, Nevada cutbacks would reduce output in the Great Basin

Region; this would not show up in the Great Basin simulation, since that models only the impacts due to demand changes in the Great Basin itself. We will, however, employ a sensitivity test for one scenario for the Great Basin. Again, this represents a low-probability upper bound, given the flexibility of labor input to power production and transmission in the face of small output changes.

Finally, we will model the income distribution impacts of changes in electricity production stemming from electricity price changes beginning with the conventional input-output computation:

$$\Delta X = (I - A)^{-1} \Delta F_e \quad (7)$$

where ΔF_e stands for the change in final demand for electricity, and the other symbols are defined as in Section II. We obtained the same result as in equation 3 (see also Section I above) with the following computation:

$$\Delta Y = V \Delta \hat{X} \quad (8)$$

where $\Delta \hat{X}$ is a diagonalized vector of changes in gross output in all sectors.

Note that we utilize the 4-digit electricity sector of IMPLAN as the basis of our perturbation. There is some definitional arbitrariness with respect to the appropriate sector arising from the somewhat unusual characteristics of WAPA. It could be included in three different sectors: a) government expenditures, b) government-owned enterprises, and c) electric utilities. The first of these is inappropriate because it represents the conventional operations of government, typically unpriced outputs. The second alternative is appropriate by definition, but would lead to incorrect results. In examining regional I-O tables, we noted that wages and salaries comprised 80-85% of gross output in this sector in most regions, as opposed to 15% applicable to WAPA. Utilizing this sector would considerably overstate the level of income changes associated with any alteration in energy prices. Thus, we utilized the third alternative--the electric utility sector.

One problem associated with this choice is that in most regions it represents a combination of various aspects of electric utility operations (i.e., production, transmission, end-use distribution) and

One problem associated with this choice is that in most regions it represents a combination of various aspects of electric utility operations (i.e., production, transmission, end-use distribution) and electricity produced by various fuels. Our simulations will thus indicate some impacts through the coal and oil industries, though these will be quite small. However, any errors introduced from this convention will be trivial in comparison to those that would arise if we used a sector that was not compatible with WAPA in terms of its proportion of wage and salary payments.

VIII. RESULTS

In this report, we present the results of sensitivity test for two cases. First is Case 1--zero employment change/zero capital income retention in the region. Recall that in this case all wage and salary gains/losses flow to current employees in the form of higher or lower working hours, and that all capital is owned by those outside the region. Case 1 can, however, also represent the less restrictive case where returns to capital are not affected by the policy under examination (without requiring that absentee ownership prevails).

We will also examine Case 7--maximum employment change/zero capital income retention. In this case wage/salary gains (losses) will be concentrated in the hands of a relatively small number of new (fired) employees but will be relatively large in absolute value (on the order of annual salaries for the range of occupations). In effect, this means the simulations are performed only for wage and salary income. At the same time, we note the results will not differ drastically between this case and those that call for positive levels of retained income (cases 3, 5 and 9), i.e., analyses which utilize the capital-related income distribution matrix. This is because wages/salaries are the predominant income type, representing between 80 and 85% of total adjusted gross income (AGI) in each region. Moreover, income from household financial activities, which is not affected by general regional economic activity typically accounts for another 5%, and hence can be omitted. Of the remaining 10 to 15% of AGI, the upper-bound for regional retention in metro areas or large rural areas is probably less than 33%, meaning at most 6.3% ($5\%/80\%$) of the total.

As discussed in section V above, although some income types, such as partnership and small corporation earnings, are residence specific, equity and debt holdings are typically divorced from location. The research team is now exploring this consideration more closely as it relates to stock or bond holders in WAPA utilities themselves. There is the possibility that there is a local preference in the case of utility stock or bond investment, and that some large holdings will be found among high-

income residents. This could result in some substantial impacts, but for a concentrated number of residents.*

At the same time, given the regulated nature of electric utilities, rates of return may not be sensitive to small changes in output levels. Therefore, it is also reasonable to assume there will be no stock dividend or bond interest rate changes for the case of WAPA itself. Moreover, changes in economic activity for other firms in the region are so small that capital-related returns from them would likely be trivial.

A. Summary Tables

1. Colorado Metro Region (all scenarios)

Individual Impact Matrices for the eleven electricity output scenarios are presented in Appendix D for each of three years--1993, 2000, and 2008.** Here, we present only one IIM for purposes of illustration and emphasize summary tables for each year. Note, the summary tables contain the transposed column sums of the individual scenario tables, and that, in effect, represent a summary of size change classes impacted. Note also that results in parentheses reflect negative impacts, and that results are in 1994 constant dollars.

Individual Impact Matrices provide details of the distributional impacts by income brackets in size of income change (see Table 6). For example, in scenario 1B for 1993 in the Colorado Metro Region, of the 129,300 households in the \$5,000-\$10,000 bracket, 30,303 are not impacted at all, 98,797 will receive between zero and \$10 each, and 201 will receive between \$25 and \$50 each. Also, each row of the matrix provides a probability distribution of how a household in a given bracket is likely to be affected. Looking again at Scenario 1B, a household in the \$5,000 to \$10,000 bracket has

*Rose et al. (1988) and others have found utility stocks, because of their tax advantage, to be concentrated among higher income households.

**Income Distribution Change Matrices are presented in Appendix E. Note one especially important number in these matrices--the one in the lower right-hand corner. This is the total income change that is distributed across household income brackets and size change classes in Summary Tables 1-27.

TABLE 6

TABLE 2. INDIVIDUAL IMPACT MATRIX

REGION: COLORADO

Year: 1993 Alternative: 1B

(in number of people)

Income Bracket	From: To:	-10000 0	0 0	0 10	10 25	25 50	50 100	100 250	250 500	500 1000	1000 2500	2500 5000	5000 10000	10000 25000	25000	Total
Under	5000	0 0.00%	35,815 22.65%	122,048 77.20%	234 0.15%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	158,097 100.00%
5000	10000	0 0.00%	30,303 23.44%	98,797 76.41%	0 0.00%	201 0.16%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	129,300 100.00%
10000	15000	0 0.00%	25,737 24.36%	79,725 75.47%	0 0.00%	0 0.00%	173 0.16%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	105,635 100.00%
15000	20000	0 0.00%	25,747 25.61%	74,579 74.20%	0 0.00%	0 0.00%	0 0.00%	190 0.19%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	100,516 100.00%
20000	30000	0 0.00%	46,581 25.73%	134,120 74.07%	0 0.00%	0 0.00%	0 0.00%	369 0.20%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	181,071 100.00%
30000	40000	0 0.00%	36,754 25.90%	104,838 73.88%	0 0.00%	0 0.00%	0 0.00%	315 0.22%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	141,908 100.00%
40000	50000	0 0.00%	29,008 25.69%	83,641 74.08%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	258 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	112,907 100.00%
50000	60000	0 0.00%	22,813 25.49%	66,469 74.27%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	209 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	89,491 100.00%
60000	70000	0 0.00%	17,368 25.10%	51,677 74.67%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	161 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	69,207 100.00%
70000	90000	0 0.00%	19,513 24.33%	60,496 75.44%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	185 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	80,194 100.00%
Over	90000	0 0.00%	16,584 22.35%	57,451 77.44%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	152 0.21%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	74,188 100.00%
		0 0.00%	306,222 24.65%	933,843 75.16%	234 0.02%	201 0.02%	173 0.01%	875 0.07%	814 0.07%	152 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1,242,514 100.00%
																1,242,514

0.8696

a 23.44% of not being impacted, a 76.41% chance of receiving between zero and \$10 and a 0.16% of receiving between \$25 and \$50.

Looking at Summary Table 1, for each scenario in 1993, more than 97% of the Colorado Metro residents will be impacted less than \$10 in absolute value, and for all but Scenarios 1C and 6C more than 99% of the residents will receive impacts this small. Only a minuscule portion of Colorado households (152 in number) will receive gains in the highest impacted range--\$5,000-\$10,000 (see the Individual Impact Matrix for Scenario 1C in Appendix D).

For the year 2000, the results are even more dramatic (see Summary Table 2). In all scenarios, well over 99.5% of the residents are affected by less than \$10 in absolute value. Moreover, the upper bound impacts are \$5,000, and these impacts are felt only by the highest income bracket (see the IIM for Scenario 1C). Maximum losses are under \$1000 (see Scenarios 3A and 6A).

The general magnitude of the changes are similar for the year 2008 scenarios (Summary Table 3). Again well over 99.5% of the residents are affected by less than \$10 positive or negative. Also, for this year the maximum impacts do not exceed \$2,500. For the two scenarios where there are negative impacts (6B and 6C) no one is projected to lose more than \$25.

2. Utah Metro Region (all scenarios)

The total income impacts for the Utah Metro Region as a whole are generally comparable to the Colorado scenarios for the years 1993 and 2000 but significantly higher for 2008.* All other things being equal, this difference in the 2008 total income changes should result in larger per-person impacts, or, in our individual impact matrix format, more entries in the high size change classes. Because of differences in income distributions between Utah and Colorado, most of these gains or losses fall into the \$10 to \$100 range, and there are, in fact, fewer individuals in Utah impacted on the high end (see for example results for the Metro Utah Region in 1993, presented in Summary Table 4). Still, in all scenarios, 99% of the households are impacted by less than \$50. Only in Scenario 3C do individual impacts exceed \$5,000, and in that case only for .01% of the

*Wage and salary income changes are proportional to output changes, ranging from 15% to 20% of electricity sector output in our regions.

SUMMARY TABLE 1

SUMMARY TABLE Individual Impact Vectors fo			REGION: COLORADO										
			YEAR :										
			1993										
14-Jun 22:19	Alternative		1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0 0.00%	0.00%
0	AND	0	306,223 24.65%	306,223 24.65%	(306,223) 24.65%	(306,223) 24.65%	306,223 24.65%	(306,223) 24.65%	(306,223) 24.65%	306,223 24.65%	306,223 24.65%	306,223 24.65%	306,223 24.65%
0	AND	10	933,843 75.16%	904,950 72.83%	(933,843) 75.16%	(934,451) 75.21%	933,734 75.15%	(933,739) 75.15%	(933,843) 75.16%	934,077 75.18%	934,077 75.18%	933,843 75.16%	908,273 73.10%
10	AND	25	234 0.02%	28,790 2.32%	0 0.00%	(875) 0.07%	109 0.01%	(104) 0.01%	0 0.00%	0 0.00%	201 0.02%	0 0.00%	25,570 2.06%
25	AND	50	201 0.02%	104 0.01%	(234) 0.02%	(814) 0.07%	0 0.00%	(234) 0.02%	(234) 0.02%	374 0.03%	363 0.03%	234 0.02%	0 0.00%
50	AND	100	173 0.01%	0 0.00%	0 0.00%	(152) 0.01%	234 0.02%	0 0.00%	(201) 0.02%	559 0.04%	942 0.08%	0 0.00%	234 0.02%
100	AND	250	875 0.07%	234 0.02%	(374) 0.03%	0 0.00%	201 0.02%	(374) 0.03%	(363) 0.03%	944 0.08%	556 0.04%	374 0.03%	0 0.00%
250	AND	500	814 0.07%	201 0.02%	(559) 0.04%	0 0.00%	363 0.03%	(559) 0.04%	(685) 0.06%	185 0.01%	152 0.01%	559 0.04%	374 0.03%
500	AND	1000	152 0.01%	363 0.03%	(944) 0.08%	0 0.00%	942 0.08%	(782) 0.06%	(814) 0.07%	152 0.01%	0 0.00%	944 0.08%	559 0.04%
1000	AND	2500	0 0.00%	942 0.08%	(338) 0.03%	0 0.00%	556 0.04%	(499) 0.04%	(152) 0.01%	0 0.00%	0 0.00%	338 0.03%	944 0.08%
2500	AND	5000	0 0.00%	556 0.04%	0 0.00%	0 0.00%	152 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	338 0.03%
5000	AND	10000	0 0.00%	152 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			1,242,515 1	1,242,515 1	(1,242,515) 1	(1,242,515) 1	1,242,514 1	(1,242,514) 1	(1,242,515) 1	1,242,514 1	1,242,514 1	1,242,515 1	1,242,515 1

SUMMARY TABLE 2

SUMMARY TABLE Individual Impact Vectors			REGION: COLORADO										
			YEAR : 2000										
14-Jun 22:19		Alternative	1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	AND	0	349,149 24.65%	349,149 24.65%	(349,149) 24.65%	349,149 24.65%	349,149 24.65%	(349,149) 24.65%	349,149 24.65%	349,149 24.65%	(349,149) 24.65%	349,149 24.65%	349,149 24.65%
0	AND	10	1,064,968 75.17%	1,064,515 75.14%	(1,064,749) 75.16%	1,064,968 75.17%	1,064,749 75.16%	(1,065,332) 75.20%	1,064,968 75.17%	1,064,749 75.16%	(1,064,749) 75.16%	1,064,968 75.17%	1,064,968 75.17%
10	AND	25	0 0.00%	235 0.02%	(219) 0.02%	194 0.01%	0 0.00%	(843) 0.06%	194 0.01%	219 0.02%	(219) 0.02%	364 0.03%	194 0.01%
25	AND	50	364 0.03%	0 0.00%	0 0.00%	334 0.02%	219 0.02%	(724) 0.05%	170 0.01%	0 0.00%	(194) 0.01%	509 0.04%	170 0.01%
50	AND	100	509 0.04%	219 0.02%	(364) 0.03%	678 0.05%	194 0.01%	(300) 0.02%	843 0.06%	194 0.01%	(334) 0.02%	1,058 0.07%	509 0.04%
100	AND	250	1,700 0.12%	194 0.01%	(843) 0.06%	1,024 0.07%	334 0.02%	(342) 0.02%	1,024 0.07%	679 0.05%	(1,197) 0.08%	642 0.05%	1,358 0.10%
250	AND	500	0 0.00%	334 0.02%	(724) 0.05%	342 0.02%	678 0.05%	0 0.00%	342 0.00%	852 0.06%	(506) 0.04%	0 0.00%	342 0.02%
500	AND	1000	0 0.00%	957 0.07%	(642) 0.05%	0 0.00%	1,024 0.07%	0 0.00%	0 0.00%	506 0.04%	(342) 0.02%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	745 0.05%	0 0.00%	0 0.00%	342 0.02%	0 0.00%	0 0.00%	342 0.02%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	342 0.02%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			1,416,690 1	1,416,690 1	(1,416,690) 1	1,416,689 1	1,416,689 1	(1,416,690) 1	1,416,690 1	1,416,690 1	(1,416,690) 1	1,416,690 1	1,416,690 1

SUMMARY TABLE 3

SUMMARY TABLE Individual Impact Vectors fo			REGION: COLORADO										
			YEAR : 2008										
14-Jun 22:19		Alternative	1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0 0.00%	0.00%
0	AND	0	378,921 24.65%	378,921 24.65%	378,921 24.65%	378,921 24.65%	378,921 24.65%	378,921 24.65%	378,921 24.65%	378,921 24.65%	(378,921) 24.65%	(378,921) 24.65%	(378,921) 24.65%
0	AND	10	1,155,743 75.17%	1,155,542 75.16%	1,155,924 75.18%	1,155,542 75.16%	1,155,542 75.16%	1,155,542 75.16%	1,155,542 75.16%	1,155,542 75.16%	(1,157,974) 75.32%	(1,157,614) 75.29%	(1,157,614) 75.29%
10	AND	25	182 0.01%	0 0.00%	309 0.02%	201 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	(597) 0.04%	(958) 0.06%	(958) 0.06%
25	AND	50	162 0.01%	201 0.01%	625 0.04%	0 0.00%	201 0.01%	201 0.01%	201 0.01%	201 0.01%	0 0.00%	0 0.00%	0 0.00%
50	AND	100	456 0.03%	0 0.00%	1,116 0.07%	182 0.01%	0 0.00%	182 0.01%	182 0.01%	182 0.01%	0 0.00%	0 0.00%	0 0.00%
100	AND	250	1,432 0.09%	490 0.03%	597 0.04%	618 0.04%	490 0.03%	309 0.02%	309 0.02%	309 0.02%	0 0.00%	0 0.00%	0 0.00%
250	AND	500	597 0.04%	625 0.04%	0 0.00%	854 0.06%	625 0.04%	916 0.06%	625 0.00%	625 0.04%	0 0.00%	0 0.00%	0 0.00%
500	AND	1000	0 0.00%	756 0.05%	0 0.00%	578 0.04%	1,116 0.07%	825 0.05%	1,116 0.07%	1,116 0.07%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	958 0.06%	0 0.00%	597 0.04%	597 0.04%	597 0.04%	597 0.04%	597 0.04%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			1,537,493 1	1,537,493 1	1,537,492 1	1,537,493 1	1,537,492 1	1,537,493 1	1,537,493 1	1,537,493 1	(1,537,492) 1	(1,537,493) 1	(1,537,493) 1

SUMMARY TABLE 4

			REGION: UTAH										
SUMMARY TABLE Individual Impact Vectors			YEAR : 1993										
		Alternative	1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	158,786 22.54%	158,786 22.54%	158,786 22.54%	158,786 22.54%	158,786 22.54%	158,786 22.54%	158,786 22.54%	158,786 22.54%	158,786 22.54%	158,786 22.54%	158,786 22.54%
0	AND	10	542,888 77.08%	506,736 71.94%	527,089 74.83%	520,965 73.96%	496,381 70.47%	542,895 77.08%	540,521 76.74%	525,262 74.57%	533,717 75.77%	525,321 74.58%	505,241 71.73%
10	AND	25	952 0.14%	24,480 3.48%	13,432 1.91%	12,752 1.81%	30,703 4.36%	945 0.13%	2,569 0.36%	13,729 1.95%	9,171 1.30%	13,671 1.94%	25,975 3.69%
25	AND	50	317 0.05%	9,305 1.32%	2,562 0.36%	8,066 1.15%	11,908 1.69%	317 0.05%	927 0.13%	3,897 0.55%	833 0.12%	3,897 0.55%	9,102 1.29%
50	AND	100	417 0.06%	2,557 0.36%	758 0.11%	1,307 0.19%	3,897 0.55%	417 0.06%	143 0.02%	833 0.12%	299 0.04%	833 0.12%	2,759 0.39%
100	AND	250	771 0.11%	936 0.13%	319 0.05%	930 0.13%	952 0.14%	771 0.11%	1,049 0.15%	435 0.06%	555 0.08%	437 0.06%	936 0.13%
250	AND	500	135 0.02%	146 0.02%	665 0.09%	276 0.04%	317 0.05%	135 0.02%	273 0.04%	419 0.06%	771 0.11%	417 0.06%	146 0.02%
500	AND	1000	96 0.01%	665 0.09%	521 0.07%	913 0.13%	417 0.06%	96 0.01%	96 0.01%	771 0.11%	135 0.02%	771 0.11%	665 0.09%
1000	AND	2500	0 0.00%	656 0.09%	231 0.03%	273 0.04%	771 0.11%	0 0.00%	0 0.00%	135 0.02%	96 0.01%	135 0.02%	656 0.09%
2500	AND	5000	0 0.00%	96 0.01%	0 0.00%	96 0.01%	135 0.02%	0 0.00%	0 0.00%	96 0.01%	0 0.00%	96 0.01%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	96 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	96 0.01%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			704,362 1	704,363 1	704,363 1	704,364 1	704,363 1	704,362 1	704,364 1	704,363 1	704,363 1	704,364 1	704,362 1

SUMMARY TABLE 5

SUMMARY TABLE Individual Impact Vectors			REGION: UTAH										
			YEAR : 2000										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	180,501 22.54%	180,501 22.54%	180,501 22.54%	180,501 22.54%	180,501 22.54%	180,501 22.54%	180,501 22.54%	180,501 22.54%	(180,501) 22.54%	180,501 22.54%	180,501 22.54%
0	AND	10	618,054 77.19%	596,523 74.50%	598,775 74.78%	595,225 74.34%	590,428 73.74%	611,128 76.33%	609,564 76.13%	591,681 73.90%	(616,428) 76.99%	617,895 77.17%	603,304 75.35%
10	AND	25	563 0.07%	16,885 2.11%	16,878 2.11%	14,339 1.79%	13,084 1.63%	5,308 0.66%	6,870 0.86%	15,973 1.99%	(1,917) 0.24%	589 0.07%	12,628 1.58%
25	AND	50	738 0.09%	3,026 0.38%	788 0.10%	6,574 0.82%	12,141 1.52%	1,909 0.24%	1,661 0.21%	8,279 1.03%	(272) 0.03%	649 0.08%	1,963 0.25%
50	AND	100	618 0.08%	1,661 0.21%	1,904 0.24%	1,916 0.24%	881 0.11%	276 0.03%	522 0.07%	1,963 0.25%	(738) 0.09%	840 0.10%	586 0.07%
100	AND	250	214 0.03%	526 0.07%	525 0.07%	563 0.07%	1,950 0.24%	1,101 0.14%	929 0.12%	589 0.07%	(618) 0.08%	214 0.03%	652 0.08%
250	AND	500	0 0.00%	925 0.12%	852 0.11%	516 0.06%	385 0.05%	252 0.03%	427 0.00%	649 0.08%	(214) 0.03%	0 0.00%	840 0.10%
500	AND	1000	0 0.00%	427 0.05%	252 0.03%	840 0.10%	852 0.11%	214 0.03%	214 0.03%	840 0.10%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	214 0.03%	214 0.03%	214 0.03%	252 0.03%	0 0.00%	0 0.00%	214 0.03%	0 0.00%	0 0.00%	214 0.03%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	214 0.03%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			800,688 1	800,688 1	800,689 1	800,688 1	800,688 1	800,689 1	800,688 1	800,689 1	(800,688) 1	800,688 1	800,688 1

SUMMARY TABLE 6

SUMMARY TABLE Individual Impact Vectors			REGION: UTAH											
			YEAR : 2008											
			Alternative	1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	195,542 22.54%	195,542 22.54%	195,542 22.54%	195,542 22.54%	195,542 22.54%	195,542 22.54%	195,542 22.54%	195,542 22.54%	(195,542) 22.54%	(195,542) 22.54%	195,542 22.54%	
0	AND	10	669,962 77.24%	654,933 75.50%	646,047 74.48%	637,662 73.51%	636,500 73.38%	616,447 71.07%	616,436 71.07%	549,549 63.36%	(665,354) 76.71%	(665,649) 76.74%	664,896 76.65%	
10	AND	25	591 0.07%	11,266 1.30%	19,309 2.23%	20,873 2.41%	18,301 2.11%	25,240 2.91%	23,252 2.68%	86,951 10.02%	(3,758) 0.43%	(3,692) 0.43%	4,209 0.49%	
25	AND	50	905 0.10%	3,142 0.36%	3,750 0.43%	7,313 0.84%	10,848 1.25%	19,411 2.24%	21,282 2.45%	13,050 1.50%	(838) 0.10%	(621) 0.07%	713 0.08%	
50	AND	100	412 0.05%	739 0.09%	713 0.08%	3,271 0.38%	3,461 0.40%	5,101 0.59%	5,228 0.60%	15,540 1.79%	(362) 0.04%	(591) 0.07%	268 0.03%	
100	AND	250	0 0.00%	703 0.08%	493 0.06%	960 0.11%	852 0.10%	3619 0.42%	3,619 0.42%	4,021 0.46%	(1,146) 0.13%	(905) 0.10%	1,371 0.16%	
250	AND	500	0 0.00%	674 0.08%	847 0.10%	473 0.05%	591 0.07%	268 0.03%	268 0.00%	839 0.10%	(412) 0.05%	(412) 0.05%	0 0.00%	
500	AND	1000	0 0.00%	412 0.05%	299 0.03%	905 0.10%	905 0.10%	697 0.08%	697 0.08%	137 0.02%	0 0.00%	0 0.00%	412 0.05%	
1000	AND	2500	0 0.00%	0 0.00%	412 0.05%	412 0.05%	412 0.05%	674 0.08%	674 0.08%	1,371 0.16%	0 0.00%	0 0.00%	0 0.00%	
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	412 0.05%	412 0.05%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	412 0.05%	0 0.00%	0 0.00%	0 0.00%	
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
			867,412 1	867,411 1	867,412 1	867,411 1	867,412 1	867,411 1	867,410 1	867,412 1	(867,412) 1	(867,412) 1	867,411 1	

TABLE 6

REGION: COLORADO

TABLE 2. INDIVIDUAL IMPACT MATRIX

Year: 1993 Alternative B1

Income Bracket	From: To:	-10000 0	0 0	0 10	10 25	25 50	50 100	100 250	250 500	500 1000	1000 2500	2500 5000	5000 10000	10000 25000	25000 Total	
Under	5000	0 0.00%	35,816 22.65%	122,048 77.20%	234 0.15%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	158,098 100.00%
5000	10000	0 0.00%	30,303 23.44%	98,797 76.41%	0 0.00%	201 0.16%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	129,300 100.00%
10000	15000	0 0.00%	25,737 24.36%	79,725 75.47%	0 0.00%	0 0.00%	173 0.16%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	105,635 100.00%
15000	20000	0 0.00%	25,747 25.61%	74,579 74.20%	0 0.00%	0 0.00%	0 0.00%	190 0.19%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	100,516 100.00%
20000	30000	0 0.00%	46,581 25.73%	134,120 74.07%	0 0.00%	0 0.00%	0 0.00%	369 0.20%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	181,071 100.00%
30000	40000	0 0.00%	36,754 25.90%	104,838 73.98%	0 0.00%	0 0.00%	0 0.00%	315 0.22%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	141,908 100.00%
40000	50000	0 0.00%	29,008 25.69%	83,641 74.08%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	258 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	112,907 100.00%
50000	60000	0 0.00%	22,813 25.49%	66,469 74.27%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	209 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	89,491 100.00%
60000	70000	0 0.00%	17,368 25.10%	51,677 74.67%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	161 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	69,207 100.00%
70000	90000	0 0.00%	19,513 24.33%	60,496 75.44%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	185 0.23%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	80,194 100.00%
Over	90000	0 0.00%	16,584 22.35%	57,451 77.44%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	152 0.21%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	74,188 100.00%
		0 0.00%	306,223 24.65%	933,843 75.16%	234 0.02%	201 0.02%	173 0.01%	875 0.07%	814 0.07%	152 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1,242,515 100.00%

SUMMARY TABLE 7

SUMMARY TABLE Individual Impact Vectors			REGION: GBASIN										
			YEAR : 1993										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	142,749 23.88%	142,749 23.88%	142,749 23.88%	142,749 23.88%	142,749 23.88%	142,749 23.88%	142,749 23.88%	142,749 23.88%	142,749 23.88%	142,749 23.88%	142,749 23.88%
0	AND	10	445,675 74.55%	386,518 64.65%	453,391 75.84%	439,489 73.52%	415,331 69.47%	307,644 51.46%	361,798 60.52%	347,931 58.20%	362,133 60.58%	351,227 58.75%	327,367 54.76%
10	AND	25	7,040 1.18%	46,130 7.72%	1,275 0.21%	7,306 1.22%	24,250 4.06%	54,520 9.12%	62,849 10.51%	67,436 11.28%	62,590 10.47%	65,289 10.92%	66,669 11.15%
25	AND	50	305 0.05%	9,685 1.62%	405 0.07%	5,731 0.96%	5,962 1.00%	57,903 9.69%	14,936 2.50%	9,851 3.32%	14,858 2.49%	18,703 3.13%	38,013 6.36%
50	AND	100	579 0.10%	5,319 0.89%	0 0.00%	448 0.07%	3,165 0.53%	16,280 2.72%	6084 1.02%	8,090 1.35%	6,093 1.02%	8,090 1.35%	10,231 1.71%
100	AND	250	1,472 0.25%	5,229 0.87%	0 0.00%	1,209 0.20%	4,265 0.71%	9,328 1.56%	6,861 1.15%	5,401 0.90%	6,851 1.15%	5,401 0.90%	6,042 1.01%
250	AND	500	0 0.00%	510 0.09%	0 0.00%	755 0.13%	625 0.10%	3,540 0.59%	448 0.07%	4,228 0.71%	448 0.07%	4,228 0.71%	4,486 0.75%
500	AND	1000	0 0.00%	1,060 0.18%	0 0.00%	133 0.02%	1,229 0.21%	3,721 0.62%	625 0.10%	663 0.11%	625 0.10%	663 0.11%	399 0.07%
1000	AND	2500	0 0.00%	620 0.10%	0 0.00%	0 0.00%	243 0.04%	1,247 0.21%	1,339 0.22%	1,229 0.21%	1,339 0.22%	1,229 0.21%	1,244 0.21%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	645 0.11%	133 0.02%	243 0.04%	133 0.02%	243 0.04%	620 0.10%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	243 0.04%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			597,820 1	597,820 1	597,820 1	597,820 1	597,819 1	597,820 1	597,822 1	597,821 1	597,819 1	597,822 1	597,820 1

SUMMARY TABLE 8

SUMMARY TABLE Individual Impact Vectors			REGION: GBASIN										
			YEAR : 2000										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	AND	0	152,853 23.88%	152,853 23.88%	152,853 23.88%	152,853 23.88%	152,853 23.88%	152,853 23.88%	152,853 23.88%	152,853 23.88%	152,853 23.88%	152,853 23.88%	152,853 23.88%
0	AND	10	480,359 75.04%	443,772 69.32%	481,264 75.18%	473,158 73.92%	453,656 70.87%	313,647 49.00%	399,604 62.43%	382,666 59.78%	453,921 70.91%	436,341 68.16%	416,042 64.99%
10	AND	25	4,716 0.74%	26,811 4.19%	4,214 0.66%	6,684 1.04%	19,564 3.06%	85,377 13.34%	60,061 9.38%	63,156 9.87%	19,299 3.01%	32,874 5.14%	49,311 7.70%
25	AND	50	591 0.09%	7,224 1.13%	1,074 0.17%	1,423 0.22%	4,877 0.76%	40,991 6.40%	10,917 1.71%	23,394 3.65%	5,216 0.81%	7,280 1.14%	9,110 1.42%
50	AND	100	1,105 0.17%	3,153 0.49%	729 0.11%	4,041 0.63%	3,040 0.47%	27,487 4.29%	7,224 1.13%	7,269 1.14%	2,829 0.44%	4,288 0.67%	5,379 0.84%
100	AND	250	509 0.08%	4,176 0.65%	0 0.00%	1,247 0.19%	4,168 0.65%	10,296 1.61%	3,457 0.54%	4,475 0.70%	4,214 0.66%	4,352 0.68%	5,185 0.81%
250	AND	500	0 0.00%	1,045 0.16%	0 0.00%	729 0.11%	876 0.14%	3,161 0.49%	3,871 0.00%	4,116 0.64%	703 0.11%	531 0.08%	640 0.10%
500	AND	1000	0 0.00%	926 0.14%	0 0.00%	0 0.00%	1,101 0.17%	4,116 0.64%	1,045 0.16%	591 0.09%	1,101 0.17%	1,297 0.20%	885 0.14%
1000	AND	2500	0 0.00%	175 0.03%	0 0.00%	0 0.00%	0 0.00%	1,105 0.17%	1,101 0.17%	1,439 0.22%	0 0.00%	317 0.05%	729 0.11%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	926 0.14%	0 0.00%	175 0.03%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	175 0.03%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			640,133 1	640,135 1	640,134 1	640,135 1	640,135 1	640,134 1	640,133 1	640,134 1	640,136 1	640,133 1	640,134 1

SUMMARY TABLE 9

SUMMARY TABLE Individual Impact Vectors			REGION: GBASIN										
			YEAR : 2008										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	160,625 23.88%	160,625 23.88%	160,625 23.88%	160,625 23.88%	160,625 23.88%	160,625 23.88%	160,625 23.88%	160,625 23.88%	160,625 23.88%	160,625 23.88%	160,625 23.88%
0	AND	10	505,521 75.15%	475,904 70.75%	492,301 73.18%	486,425 72.31%	459,625 68.33%	198,045 29.44%	377,285 56.09%	367,782 54.67%	490,301 72.89%	490,401 72.90%	476,048 70.77%
10	AND	25	4,516 0.67%	22,211 3.30%	9,786 1.45%	13,114 1.95%	33,371 4.96%	192,028 28.55%	69,264 10.30%	78,696 11.70%	9,906 1.47%	11,322 1.68%	23,404 3.48%
25	AND	50	696 0.10%	5,855 0.87%	3,270 0.49%	5,124 0.76%	8,727 1.30%	56,476 8.40%	41,949 6.24%	39,947 5.94%	5,150 0.77%	3,634 0.54%	4,518 0.67%
50	AND	100	1,325 0.20%	1,725 0.26%	4,438 0.66%	1,112 0.17%	3,634 0.54%	41,857 6.22%	8,151 1.21%	10,170 1.51%	484 0.07%	4,438 0.66%	1,725 0.26%
100	AND	250	0 0.00%	4,493 0.67%	938 0.14%	4,570 0.68%	4,515 0.67%	11670 1.73%	8,014 1.19%	8,068 1.20%	4,892 0.73%	938 0.14%	4,493 0.67%
250	AND	500	0 0.00%	1,051 0.16%	1,101 0.16%	1,128 0.17%	861 0.13%	4,586 0.68%	1,112 0.00%	1,112 0.17%	933 0.14%	1,101 0.16%	1,051 0.16%
500	AND	1000	0 0.00%	819 0.12%	224 0.03%	585 0.09%	933 0.14%	1,112 0.17%	4,413 0.66%	4,413 0.66%	392 0.06%	224 0.03%	819 0.12%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	392 0.06%	4,570 0.68%	1,285 0.19%	1,285 0.19%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1,128 0.17%	585 0.09%	585 0.09%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	585 0.09%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			672,683 1	672,683 1	672,683 1	672,683 1	672,683 1	672,682 1	672,683 1	672,683 1	672,683 1	672,683 1	672,683 1

SUMMARY TABLE 10

SUMMARY TABLE Individual Impact Vectors			REGION: ARIZONA											
			YEAR : 1993											
			Alternative	1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%	430,250 26.23%
0	AND	10	1,204,643 73.44%	1,184,571 72.21%	1,204,643 73.44%	1,204,255 73.41%	1,204,114 73.41%	1,204,255 73.41%	1,204,255 73.41%	1,204,254 73.41%	1,204,255 73.41%	1,204,254 73.41%	1,202,891 73.33%	
10	AND	25	661 0.04%	18,320 1.12%	661 0.04%	738 0.04%	534 0.03%	738 0.04%	738 0.04%	395 0.02%	738 0.04%	395 0.02%	1,747 0.11%	
25	AND	50	4,790 0.29%	1,363 0.08%	4,790 0.29%	2,891 0.18%	656 0.04%	4,675 0.29%	2,891 0.18%	655 0.04%	2,891 0.18%	655 0.04%	355 0.02%	
50	AND	100	0 0.00%	395 0.02%	0 0.00%	2,211 0.13%	4,790 0.29%	426 0.03%	2211 0.13%	4,790 0.29%	2,211 0.13%	4,790 0.29%	3,469 0.21%	
100	AND	250	0 0.00%	1,306 0.08%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1,633 0.10%	
250	AND	500	0 0.00%	4,139 0.25%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
500	AND	1000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	
			1,640,344 1	1,640,344 1	1,640,344 1	1,640,345 1	1,640,344 1	1,640,344 1	1,640,345 1	1,640,344 1	1,640,345 1	1,640,344 1	1,640,345 1	

SUMMARY TABLE 11

			REGION: ARIZONA										
SUMMARY TABLE Individual Impact Vectors			YEAR : 2000										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0 0.00%	0.00%
0	AND	0	521,292 26.23%	521,292 26.23%	521,292 26.23%	521,292 26.23%	521,292 26.23%	521,292 26.23%	521,292 26.23%	521,292 26.23%	521,292 26.23%	521,292 26.23%	521,292 26.23%
0	AND	10	1,461,599 73.54%	1,448,533 72.88%	1,459,387 73.43%	1,459,129 73.42%	1,454,754 73.20%	1,460,631 73.49%	1,460,198 73.47%	1,459,389 73.43%	1,460,200 73.47%	1,459,389 73.43%	1,459,387 73.43%
10	AND	25	2,771 0.14%	9,885 0.50%	1,246 0.06%	1,502 0.08%	5,111 0.26%	2,603 0.13%	2,275 0.11%	2,210 0.11%	3,034 0.15%	2,210 0.11%	1,246 0.06%
25	AND	50	1,785 0.09%	1,448 0.07%	2,602 0.13%	1,843 0.09%	1,734 0.09%	1,908 0.10%	2,669 0.13%	2,247 0.11%	1,908 0.10%	2,247 0.11%	2,602 0.13%
50	AND	100	0 0.00%	1,734 0.09%	1,908 0.10%	2,669 0.13%	2,247 0.11%	1,013 0.05%	1,013 0.05%	1,297 0.07%	1,013 0.05%	1,297 0.07%	1,908 0.10%
100	AND	250	0 0.00%	2,771 0.14%	1,013 0.05%	1,013 0.05%	2,309 0.12%	0 0.00%	0 0.00%	1,013 0.05%	0 0.00%	1,013 0.05%	1,013 0.05%
250	AND	500	0 0.00%	1,785 0.09%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
500	AND	1000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			1,987,447 1	1,987,448 1	1,987,448 1	1,987,448 1	1,987,447 1	1,987,447 1	1,987,447 1	1,987,448 1	1,987,447 1	1,987,448 1	1,987,448 1

SUMMARY TABLE 12

SUMMARY TABLE Individual Impact Vectors			REGION: ARIZONA										
			YEAR : 2008										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	AND	0	587,371 26.23%	587,371 26.23%	587,371 26.23%	587,371 26.23%	587,371 26.23%	587,371 26.23%	587,371 26.23%	587,371 26.23%	587,371 26.23%	587,371 26.23%	587,371 26.23%
0	AND	10	1,648,711 73.62%	1,635,871 73.05%	1,649,292 73.65%	1,652,006 73.77%	1,648,012 73.59%	1,646,352 73.52%	1,645,459 73.48%	1,645,458 73.48%	1,650,241 73.69%	1,647,218 73.56%	1,645,459 73.48%
10	AND	25	1,530 0.07%	8,105 0.36%	2,713 0.12%	0 0.00%	2,229 0.10%	2,941 0.13%	3,251 0.15%	2,554 0.11%	1,765 0.08%	3,022 0.13%	3,251 0.15%
25	AND	50	1,765 0.08%	1,483 0.07%	0 0.00%	0 0.00%	1,765 0.08%	948 0.04%	1,530 0.07%	2,229 0.10%	0 0.00%	1,765 0.08%	1,530 0.07%
50	AND	100	0 0.00%	1,763 0.08%	0 0.00%	0 0.00%	0 0.00%	1,765 0.08%	1,765 0.08%	1,765 0.08%	0 0.00%	0 0.00%	1,765 0.08%
100	AND	250	0 0.00%	3,018 0.13%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
250	AND	500	0 0.00%	1,765 0.08%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
500	AND	1000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			2,239,377 1	2,239,376 1	2,239,376 1	2,239,377 1	2,239,377 1	2,239,377 1	2,239,376 1	2,239,377 1	2,239,377 1	2,239,376 1	2,239,376 1

SUMMARY TABLE 13

REGION: NEVADA

SUMMARY TABLE
Individual Impact Vectors

YEAR: 1993

Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	106,373 18.64%	106,373 18.64%	106,373 18.64%	106,373 18.64%	106,373 18.64%	106,373 18.64%	106,373 18.64%	106,373 18.64%	106,373 18.64%	106,373 18.64%	106,373 18.64%
0	AND	10	462,549 81.07%	455,542 79.84%	463,500 81.23%	461,527 80.89%	459,082 80.46%	463,500 81.23%	462,193 81.00%	461,208 80.83%	462,549 81.07%	461,381 80.86%	459,082 80.46%
10	AND	25	950 0.17%	5,839 1.02%	714 0.13%	666 0.12%	2,444 0.43%	714 0.13%	1,307 0.23%	985 0.17%	1,128 0.20%	812 0.14%	2,444 0.43%
25	AND	50	439 0.08%	512 0.09%	0 0.00%	1,089 0.19%	666 0.12%	0 0.00%	439 0.08%	821 0.14%	261 0.05%	821 0.14%	666 0.12%
50	AND	100	275 0.05%	807 0.14%	0 0.00%	656 0.11%	821 0.14%	0 0.00%	275 0.05%	663 0.12%	275 0.05%	924 0.16%	821 0.14%
100	AND	250	0 0.00%	977 0.17%	0 0.00%	275 0.05%	924 0.16%	0 0.00%	0 0.00%	537 0.09%	0 0.00%	275 0.05%	924 0.16%
250	AND	500	0 0.00%	537 0.09%	0 0.00%	0 0.00%	275 0.05%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	275 0.05%
500	AND	1000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			570,586 1	570,587 1	570,587 1	570,586 1	570,585 1	570,587 1	570,587 1	570,587 1	570,586 1	570,586 1	570,585 1

SUMMARY TABLE 14

			REGION: NEVADA										
SUMMARY TABLE Individual Impact Vectors			YEAR : 2000										
		Alternative	1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	110,821 18.65%	110,821 18.65%	110,821 18.65%	110,821 18.65%	110,821 18.65%	110,821 18.65%	110,821 18.65%	110,821 18.65%	110,821 18.65%	110,821 18.65%	110,821 18.65%
0	AND	10	481,497 81.04%	474,697 79.89%	482,704 81.24%	480,479 80.86%	477,671 80.39%	482,704 81.24%	481,497 81.04%	480,326 80.84%	481,696 81.07%	480,479 80.86%	477,671 80.39%
10	AND	25	1,207 0.20%	5,629 0.95%	649 0.11%	1,019 0.17%	2,931 0.49%	649 0.11%	1,016 0.17%	820 0.14%	1,008 0.17%	667 0.11%	2,931 0.49%
25	AND	50	649 0.11%	684 0.12%	0 0.00%	1,016 0.17%	895 0.15%	0 0.00%	476 0.08%	863 0.15%	649 0.11%	1,142 0.19%	895 0.15%
50	AND	100	0 0.00%	998 0.17%	0 0.00%	476 0.08%	790 0.13%	0 0.00%	364 0.06%	981 0.17%	0 0.00%	702 0.12%	790 0.13%
100	AND	250	0 0.00%	981 0.17%	0 0.00%	364 0.06%	702 0.12%	0 0.00%	0 0.00%	364 0.06%	0 0.00%	364 0.06%	702 0.12%
250	AND	500	0 0.00%	364 0.06%	0 0.00%	0 0.00%	364 0.06%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	364 0.06%
500	AND	1000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			594,174 1	594,174 1	594,174 1	594,175 1	594,174 1	594,174 1	594,174 1	594,175 1	594,174 1	594,175 1	594,174 1

SUMMARY TABLE 15

[illegible]

SUMMARY TABLE 16

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REGION: NEW MEXICO

SUMMARY TABLE
Individual Impact Vectors

YEAR : 1993

			Alternative	1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	AND	0	0	101,111 25.68%	101,111 25.68%	101,111 25.68%	101,111 25.68%	101,111 25.68%	101,111 25.68%	101,111 25.68%	101,111 25.68%	101,111 25.68%	101,111 25.68%	101,111 25.68%
0	AND	10	10	291,631 74.06%	283,030 71.87%	289,936 73.63%	292,333 74.24%	289,118 73.42%	289,936 73.63%	291,174 73.94%	291,713 74.08%	287,765 73.08%	283,123 71.90%	280,025 71.11%
10	AND	25	25	220 0.06%	6,088 1.55%	1,357 0.34%	297 0.08%	2,124 0.54%	1,696 0.43%	538 0.14%	229 0.06%	3,410 0.87%	6,223 1.58%	6,581 1.67%
25	AND	50	50	186 0.05%	2,057 0.52%	525 0.13%	50 0.01%	470 0.12%	187 0.05%	229 0.06%	257 0.07%	496 0.13%	1,829 0.46%	3,438 0.87%
50	AND	100	100	397 0.10%	496 0.13%	219 0.06%	0 0.00%	229 0.06%	219 0.06%	257 0.07%	367 0.09%	181 0.05%	538 0.14%	1,198 0.30%
100	AND	250	250	196 0.05%	272 0.07%	295 0.07%	0 0.00%	391 0.10%	397 0.10%	367 0.09%	113 0.03%	348 0.09%	229 0.06%	576 0.15%
250	AND	500	500	50 0.01%	257 0.07%	297 0.08%	0 0.00%	234 0.06%	196 0.05%	63 0.02%	0 0.00%	309 0.08%	257 0.07%	219 0.06%
500	AND	1000	1000	0 0.00%	309 0.08%	50 0.01%	0 0.00%	63 0.02%	50 0.01%	50 0.01%	0 0.00%	121 0.03%	309 0.08%	295 0.07%
1000	AND	2500	2500	0 0.00%	121 0.03%	0 0.00%	0 0.00%	50 0.01%	0 0.00%	0 0.00%	0 0.00%	50 0.01%	171 0.04%	297 0.08%
2500	AND	5000	5000	0 0.00%	50 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	50 0.01%
5000	AND	10000	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
				393,791 1	393,791 1	393,790 1	393,791 1	393,790 1	393,792 1	393,789 1	393,790 1	393,791 1	393,790 1	393,790 1

SUMMARY TABLE 17

SUMMARY TABLE Individual Impact Vectors			REGION: NEW MEXICO										
			YEAR : 2000										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	120,021 25.68%	120,021 25.68%	120,021 25.68%	120,021 25.68%	120,021 25.68%	120,021 25.68%	120,021 25.68%	120,021 25.68%	120,021 25.68%	120,021 25.68%	120,021 25.68%
0	AND	10	346,186 74.06%	337,924 72.29%	344,928 73.79%	347,280 74.29%	343,821 73.55%	346,186 74.06%	346,550 74.14%	345,011 73.81%	340,538 72.85%	337,500 72.20%	330,143 70.63%
10	AND	25	365 0.08%	5,897 1.26%	1,258 0.27%	136 0.03%	2,288 0.49%	284 0.06%	436 0.09%	1,277 0.27%	4,389 0.94%	5,697 1.22%	10,395 2.22%
25	AND	50	312 0.07%	2,235 0.48%	284 0.06%	0 0.00%	271 0.06%	251 0.05%	294 0.06%	263 0.06%	1,258 0.27%	1,814 0.39%	4,389 0.94%
50	AND	100	303 0.06%	232 0.05%	251 0.05%	0 0.00%	171 0.04%	366 0.08%	136 0.03%	312 0.07%	193 0.04%	1,175 0.25%	1,181 0.25%
100	AND	250	251 0.05%	263 0.06%	444 0.09%	0 0.00%	436 0.09%	330 0.07%	0 0.00%	418 0.09%	341 0.07%	365 0.08%	361 0.08%
250	AND	500	0 0.00%	312 0.07%	251 0.05%	0 0.00%	294 0.06%	0 0.00%	0 0.00%	136 0.03%	366 0.08%	312 0.07%	251 0.05%
500	AND	1000	0 0.00%	418 0.09%	0 0.00%	0 0.00%	136 0.03%	0 0.00%	0 0.00%	0 0.00%	194 0.04%	303 0.06%	266 0.06%
1000	AND	2500	0 0.00%	136 0.03%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	136 0.03%	251 0.05%	294 0.06%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	136 0.03%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			467,438 1	467,438 1	467,437 1	467,437 1	467,438 1	467,438 1	467,437 1	467,438 1	467,436 1	467,438 1	467,437 1

SUMMARY TABLE 18

			REGION: NEW MEXICO										
SUMMARY TABLE Individual Impact Vectors			YEAR : 2008										
		Alternative	1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	AND	0	134,699 25.68%	134,699 25.68%	134,699 25.68%	134,699 25.68%	134,699 25.68%	134,699 25.24%	134,699 25.68%	134,699 25.68%	134,699 25.68%	134,699 25.68%	134,699 25.68%
0	AND	10	388,522 74.06%	380,630 72.56%	388,522 74.06%	388,522 74.06%	384,774 73.35%	398,402 74.66%	388,786 74.11%	386,232 73.62%	383,841 73.17%	378,174 72.09%	374,624 71.41%
10	AND	25	496 0.09%	5,519 1.05%	342 0.07%	342 0.07%	3,556 0.68%	504 0.09%	378 0.07%	2,290 0.44%	4,424 0.84%	7,974 1.52%	9,217 1.76%
25	AND	50	270 0.05%	2,279 0.43%	299 0.06%	299 0.06%	369 0.07%	0 0.00%	480 0.09%	263 0.05%	257 0.05%	2,181 0.42%	2,391 0.46%
50	AND	100	355 0.07%	272 0.05%	480 0.09%	480 0.09%	165 0.03%	0 0.00%	263 0.05%	378 0.07%	263 0.05%	369 0.07%	2,195 0.42%
100	AND	250	263 0.05%	319 0.06%	263 0.05%	263 0.05%	538 0.10%	0 0.00%	0 0.00%	480 0.09%	378 0.07%	319 0.06%	437 0.08%
250	AND	500	0 0.00%	384 0.07%	0 0.00%	0 0.00%	241 0.05%	0 0.00%	0 0.00%	263 0.05%	480 0.09%	384 0.07%	299 0.06%
500	AND	1000	0 0.00%	241 0.05%	0 0.00%	0 0.00%	263 0.05%	0 0.00%	0 0.00%	0 0.00%	263 0.05%	241 0.05%	334 0.06%
1000	AND	2500	0 0.00%	263 0.05%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	263 0.05%	408 0.08%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			524,605 1	524,606 1	524,605 1	524,605 1	524,605 1	533,605 1	524,606 1	524,605 1	524,605 1	524,604 1	524,604 1

SUMMARY TABLE 19

			REGION: WYOMING										
SUMMARY TABLE Individual Impact Vectors			YEAR : 1993										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	19,357 48.38%	19,357 48.38%	19,357 48.38%	19,357 48.38%	19,357 48.38%	19,357 48.38%	19,357 48.38%	19,357 48.38%	19,357 48.38%	19,357 48.38%	19,357 48.38%
0	AND	10	20,623 51.54%	20,521 51.29%	20,582 51.44%	20,656 51.62%	20,572 51.41%	20,623 51.54%	20,656 51.62%	20,582 51.44%	20,610 51.51%	20,572 51.41%	20,560 51.38%
10	AND	25	29 0.07%	50 0.12%	28 0.07%	0 0.00%	21 0.05%	29 0.07%	0 0.00%	28 0.07%	24 0.06%	21 0.05%	21 0.05%
25	AND	50	4 0.01%	21 0.05%	24 0.06%	0 0.00%	31 0.08%	4 0.01%	0 0.00%	24 0.06%	18 0.04%	31 0.08%	28 0.07%
50	AND	100	0 0.00%	31 0.08%	18 0.04%	0 0.00%	18 0.04%	0 0.00%	0 0.00%	18 0.04%	4 0.01%	18 0.04%	14 0.03%
100	AND	250	0 0.00%	29 0.07%	4 0.01%	0 0.00%	15 0.04%	0 0.00%	0 0.00%	4 0.01%	0 0.00%	15 0.04%	29 0.07%
250	AND	500	0 0.00%	4 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	4 0.01%
500	AND	1000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			40,013 1	40,013 1	40,013 1	40,013 1	40,014 1	40,013 1	40,013 1	40,013 1	40,013 1	40,014 1	40,013 1

SUMMARY TABLE 20

SUMMARY TABLE Individual Impact Vectors			REGION: WYOMING										
			YEAR : 2000										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	AND	0	21,328 48.37%	21,328 48.38%	21,328 48.37%	21,328 48.38%	21,328 48.38%	21,328 48.37%	21,328 48.38%	21,328 48.37%	21,328 48.38%	21,328 48.37%	21,328 48.38%
0	AND	10	22,718 51.53%	22,653 51.38%	22,703 51.49%	22,753 51.61%	22,674 51.43%	22,703 51.49%	22,729 51.55%	22,703 51.49%	22,753 51.61%	22,703 51.49%	22,664 51.41%
10	AND	25	36 0.08%	21 0.05%	27 0.06%	7 0.02%	28 0.06%	27 0.06%	24 0.05%	27 0.06%	7 0.02%	27 0.06%	39 0.09%
25	AND	50	7 0.02%	28 0.06%	24 0.05%	0 0.00%	27 0.06%	24 0.05%	7 0.02%	24 0.05%	0 0.00%	24 0.05%	27 0.06%
50	AND	100	0 0.00%	27 0.06%	7 0.02%	0 0.00%	24 0.05%	7 0.02%	0 0.00%	7 0.02%	0 0.00%	7 0.02%	15 0.03%
100	AND	250	0 0.00%	24 0.05%	0 0.00%	0 0.00%	7 0.02%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	15 0.03%
250	AND	500	0 0.00%	7 0.02%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
500	AND	1000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			44,089 1	44,088 1	44,089 1	44,088 1	44,088 1	44,089 1	44,088 1	44,089 1	44,088 1	44,089 1	44,088 1

SUMMARY TABLE 21

			REGION: WYOMING										
SUMMARY TABLE			YEAR: 2008										
Individual Impact Vectors													
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	22,583 48.38%	22,583 48.38%	22,583 48.38%	22,583 48.38%	22,583 48.38%	22,583 48.38%	22,583 48.38%	22,583 48.38%	22,583 48.38%	22,583 48.38%	22,583 48.38%
0	AND	10	23,993 51.40%	23,993 51.40%	24,099 51.62%	24,028 51.47%	24,002 51.42%	24,099 51.62%	24,066 51.55%	24,011 51.44%	24,066 51.55%	24,028 51.47%	24,002 51.42%
10	AND	25	35 0.07%	18 0.04%	0 0.00%	37 0.08%	26 0.06%	0 0.00%	20 0.04%	32 0.07%	33 0.07%	27 0.06%	26 0.06%
25	AND	50	27 0.06%	32 0.07%	0 0.00%	20 0.04%	37 0.08%	0 0.00%	14 0.03%	23 0.05%	0 0.00%	18 0.04%	37 0.08%
50	AND	100	43 0.09%	23 0.05%	0 0.00%	14 0.03%	20 0.04%	0 0.00%	0 0.00%	33 0.07%	0 0.00%	25 0.05%	20 0.04%
100	AND	250	0 0.00%	33 0.07%	0 0.00%	0 0.00%	14 0.03%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	14 0.03%
250	AND	500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
500	AND	1000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			46,681 1	46,682 1	46,682 1	46,682 1	46,682 1	46,682 1	46,683 1	46,682 1	46,682 1	46,681 1	46,682 1

SUMMARY TABLE 22

SUMMARY TABLE Individual Impact Vectors			REGION: HPLAIN										
			YEAR: 1993										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	70,278 23.26%	70,278 23.26%	70,278 23.26%	70,278 23.26%	70,278 23.26%	70,278 23.26%	70,278 23.26%	70,278 23.26%	70,278 23.26%	70,278 23.26%	70,278 23.26%
0	AND	10	227,475 75.27%	194,775 64.45%	219,813 72.74%	230,060 76.13%	213,946 70.80%	230,378 76.24%	227,088 75.15%	214,930 71.12%	222,062 73.48%	211,161 69.88%	194,996 64.53%
10	AND	25	2,504 0.83%	20,537 6.80%	8,312 2.75%	1,283 0.42%	11,645 3.85%	1,030 0.34%	2,410 0.80%	11,072 3.66%	6,276 2.08%	12,177 4.03%	22,000 7.28%
25	AND	50	400 0.13%	9,798 3.24%	1,394 0.46%	139 0.05%	2,777 0.92%	284 0.09%	824 0.27%	2,556 0.85%	1,323 0.44%	4,930 1.63%	8,653 2.86%
50	AND	100	1,030 0.34%	3,232 1.07%	859 0.28%	212 0.07%	1,634 0.54%	0 0.00%	1020 0.34%	1,443 0.48%	716 0.24%	1,251 0.41%	2,889 0.96%
100	AND	250	284 0.09%	1,668 0.55%	1,030 0.34%	168 0.06%	1,316 0.44%	198 0.07%	296 0.10%	1,316 0.44%	1,030 0.34%	1,759 0.58%	1,474 0.49%
250	AND	500	70 0.02%	1,306 0.43%	284 0.09%	55 0.02%	91 0.03%	25 0.01%	55 0.02%	91 0.03%	284 0.09%	130 0.04%	1,306 0.43%
500	AND	1000	98 0.03%	91 0.03%	0 0.00%	0 0.00%	284 0.09%	0 0.00%	168 0.06%	284 0.09%	70 0.02%	284 0.09%	91 0.03%
1000	AND	2500	55 0.02%	284 0.09%	223 0.07%	0 0.00%	128 0.04%	0 0.00%	55 0.02%	128 0.04%	153 0.05%	70 0.02%	284 0.09%
2500	AND	5000	0 0.00%	128 0.04%	0 0.00%	0 0.00%	95 0.03%	0 0.00%	0 0.00%	95 0.03%	0 0.00%	153 0.05%	128 0.04%
5000	AND	10000	0 0.00%	95 0.03%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	95 0.03%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			302,194 1	302,192 1	302,193 1	302,195 1	302,194 1	302,193 1	302,194 1	302,193 1	302,192 1	302,193 1	302,194 1

SUMMARY TABLE 23

			REGION: HPLAIN										
SUMMARY TABLE Individual Impact Vectors			YEAR : 2000										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	AND	0	73,164 23.26%	73,164 23.26%	73,164 23.26%	73,164 23.26%	73,164 23.26%	73,164 23.26%	73,164 23.26%	73,164 23.26%	73,164 23.26%	73,164 23.26%	73,164 23.26%
0	AND	10	238,222 75.72%	206,460 65.63%	235,564 74.88%	239,247 76.05%	225,235 71.59%	239,421 76.10%	236,815 75.27%	227,668 72.37%	236,903 75.30%	229,564 72.97%	218,017 69.30%
10	AND	25	1,337 0.42%	23,019 7.32%	3,211 1.02%	616 0.20%	10,603 3.37%	1,424 0.45%	2,432 0.77%	8,712 2.77%	2,462 0.78%	7,307 2.32%	15,730 5.00%
25	AND	50	309 0.10%	6,093 1.94%	893 0.28%	1,047 0.33%	2,554 0.81%	139 0.04%	611 0.19%	2,396 0.76%	497 0.16%	2,006 0.64%	3,817 1.21%
50	AND	100	1,055 0.34%	2,820 0.90%	1,176 0.37%	271 0.09%	1,167 0.37%	197 0.06%	1,008 0.32%	837 0.27%	1,047 0.33%	943 0.30%	1,682 0.53%
100	AND	250	257 0.08%	1,429 0.45%	336 0.11%	143 0.05%	1,285 0.41%	192 0.06%	315 0.10%	1,252 0.40%	271 0.09%	1,089 0.35%	616 0.20%
250	AND	500	192 0.06%	1,024 0.33%	85 0.03%	117 0.04%	139 0.04%	68 0.02%	85 0.00%	264 0.08%	143 0.05%	271 0.09%	1,047 0.33%
500	AND	1000	68 0.02%	139 0.04%	107 0.03%	0 0.00%	197 0.06%	0 0.00%	138 0.04%	136 0.04%	81 0.03%	85 0.03%	271 0.09%
1000	AND	2500	0 0.00%	282 0.09%	68 0.02%	0 0.00%	192 0.06%	0 0.00%	36 0.01%	138 0.04%	36 0.01%	138 0.04%	143 0.05%
2500	AND	5000	0 0.00%	107 0.03%	0 0.00%	0 0.00%	68 0.02%	0 0.00%	0 0.00%	36 0.01%	0 0.00%	36 0.01%	117 0.04%
5000	AND	10000	0 0.00%	68 0.02%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			314,604 1	314,605 1	314,604 1	314,605 1	314,604 1	314,605 1	314,604 1	314,603 1	314,604 1	314,603 1	314,604 1

SUMMARY TABLE 24

[illegible]

SUMMARY TABLE

Individual Impact Vectors

Alternative

REGION: RMOUN

YEAR : 1993

YEAR : 1993

[illegible]

SUMMARY TABLE 26

			REGION: RMOUN										
SUMMARY TABLE Individual Impact Vectors			YEAR : 2000										
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
0	AND	0	137,382 27.36%	137,382 27.36%	137,382 27.36%	137,382 27.36%	137,382 27.36%	137,382 27.36%	137,382 27.36%	137,382 27.36%	137,382 27.36%	137,382 27.36%	137,382 27.36%
0	AND	10	360,254 71.75%	316,927 63.12%	363,440 72.38%	349,799 69.66%	327,838 65.29%	256,350 51.05%	321,783 64.09%	327,837 65.29%	362,326 72.16%	360,455 71.79%	358,605 71.42%
10	AND	25	2,071 0.41%	29,429 5.86%	1,297 0.26%	10,456 2.08%	21,960 4.37%	71,487 14.24%	24,972 4.97%	19,741 3.93%	372 0.07%	1,870 0.37%	3,325 0.66%
25	AND	50	372 0.07%	9,822 1.96%	0 0.00%	1,679 0.33%	9,871 1.97%	17,294 3.44%	11,853 2.36%	11,030 2.20%	1,030 0.21%	372 0.07%	393 0.08%
50	AND	100	742 0.15%	5,613 1.12%	0 0.00%	574 0.11%	2,263 0.45%	10,462 2.08%	3,325 0.66%	3,325 0.66%	1,009 0.20%	1,030 0.21%	759 0.15%
100	AND	250	1,297 0.26%	535 0.11%	0 0.00%	933 0.19%	574 0.11%	6,340 1.26%	393 0.08%	574 0.11%	0 0.00%	1,009 0.20%	1,383 0.28%
250	AND	500	0 0.00%	372 0.07%	0 0.00%	1,028 0.20%	578 0.12%	393 0.08%	759 0.00%	578 0.12%	0 0.00%	0 0.00%	269 0.05%
500	AND	1000	0 0.00%	1,566 0.31%	0 0.00%	269 0.05%	1,383 0.28%	372 0.07%	1,383 0.28%	1,383 0.28%	0 0.00%	0 0.00%	0 0.00%
1000	AND	2500	0 0.00%	473 0.09%	0 0.00%	0 0.00%	269 0.05%	1,770 0.35%	269 0.05%	269 0.05%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	269 0.05%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			502,118 1	502,119 1	502,119 1	502,120 1	502,118 1	502,119 1	502,119 1	502,119 1	502,119 1	502,118 1	502,119 1

SUMMARY TABLE 27

SUMMARY TABLE Individual Impact Vectors			REGION: RMOUN										
			YEAR :		2008								
Alternative			1B	1C	3A	3B	3C	5A	5B	5C	6A	6B	6C
1000	AND	0	0 0.00%	0 0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0 0.00%	0.00%
0	AND	0	144,308 27.36%	144,308 27.35%	144,308 27.36%	144,308 27.36%	144,308 27.36%	144,308 27.36%	144,308 27.36%	144,308 27.36%	144,308 27.36%	144,308 27.36%	144,308 27.36%
0	AND	10	380,349 72.11%	351,783 66.70%	374,736 71.05%	358,537 67.98%	348,795 66.13%	242,350 45.95%	334,198 63.36%	347,531 65.89%	364,968 69.20%	355,264 67.36%	349,716 66.31%
10	AND	25	192 0.04%	16,436 3.12%	5,613 1.06%	17,497 3.32%	16,293 3.09%	103,370 19.60%	24,338 4.61%	17,436 3.31%	14,297 2.71%	19,472 3.69%	18,503 3.51%
25	AND	50	330 0.06%	11,045 2.09%	192 0.04%	4,315 0.82%	13,722 2.60%	12,817 2.43%	12,292 2.33%	12,002 2.28%	1,084 0.21%	4,979 0.94%	10,804 2.05%
50	AND	100	2,256 0.43%	1,084 0.21%	172 0.03%	192 0.04%	1,539 0.29%	12,292 2.33%	8,885 1.68%	3,379 0.64%	192 0.04%	635 0.12%	1,325 0.25%
100	AND	250	0 0.00%	364 0.07%	2,414 0.46%	330 0.06%	364 0.07%	9520 1.80%	826 0.16%	192 0.04%	1,033 0.20%	364 0.07%	364 0.07%
250	AND	500	0 0.00%	860 0.16%	0 0.00%	2,256 0.43%	515 0.10%	192 0.04%	172 0.00%	330 0.06%	1,554 0.29%	1,504 0.29%	515 0.10%
500	AND	1000	0 0.00%	1,554 0.29%	0 0.00%	0 0.00%	1,899 0.36%	172 0.03%	1,504 0.29%	2,256 0.43%	0 0.00%	909 0.17%	1,899 0.36%
1000	AND	2500	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	2,414 0.46%	909 0.17%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2500	AND	5000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
5000	AND	10000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
10000	AND	25000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
25000	AND	100000	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
			527,435 1	527,434 1	527,435 1	527,435 1	527,435 1	527,435 1	527,432 1	527,434 1	527,436 1	527,435 1	527,434 1

2 of 2

population (96 households). None of the Utah Metro Region scenarios for 1993 call for any households to lose income.

The impacts are typically not as strong in the year 2000 (see Summary Table 5). Again, 99% of the households are impacted by less than \$50 in all scenarios, but there are no individual impacts above \$5,000 and no losses exceeding \$500.

The impacts for the year 2008 are more pronounced than for the other two scenarios (see Summary Table 6). Now more than 99% of the households will be impacted by less than \$100 in all scenarios, and there are a higher proportion (though still a relatively small number) of impacts in the \$100 to \$250 range. Maximum impacts are in the \$5,000 to \$10,000 income change range (0.05% of the households) for Scenario 5C.

3. Great Basin Region

One of the other regions in which significant changes in electricity production are projected is the Great Basin (see again Appendix A for a list of counties in each region). The Great Basin results are similar to those of Utah, though there are a couple of scenarios in which more than 1.0% of the households are impacted by more than \$100. Again though, the maximum impacts are \$10,000 (see Summary Tables 7-9).

Even in the highest percentage change scenario for all regions--the 4.3% projection in scenario 5A in the year 2008--more than 90% of the households are projected to receive gains of less than \$50. Also, only 0.09% of the households will receive gains in the maximum category--\$5,000-\$10,000.

4. Other Regions

A grand summary of the individual income distribution impacts for the aforementioned and remaining regions is presented in Table 7. All of these remaining regions, except the Rocky Mountain and High Plains Regions, have minimal impacts. For example, most of the scenarios call for 99% or more of the households to receive gains of \$10 or less. In fact, this is the case for all scenarios in all years in the Wyoming Region. For most of these remaining regions, the maximum income change is \$500. Moreover, none of these regions are projected to suffer income losses.

TABLE 7. GRAND SUMMARY OF INDIVIDUAL IMPACTS

Region	<99% of Households Receive Income Changes >\$10 in Absolute Value	Maximum Impact
Colorado	1C, 3C, 6C (1993)	\$10,000
Utah	Most scenarios (all years)	\$10,000
Great Basin	Nearly all scenarios (all years)	\$10,000
Arizona	1C (1993)	\$500
Nevada	1C (1993, 2000, 2008)	\$500
New Mexico	1C, 6A, 6B, 6C (all years)	\$2,500
Wyoming	None	\$500
High Plains	Most scenarios (all years)	\$10,000
Rocky Mountains	Most scenarios (all years)	\$10,000

The pattern of the Rocky Mountain Region impacts are similar to those of Utah and Colorado. That is, about 95% or more of the households are projected to receive impacts of less than \$10, and the maximum impact is \$10,000. The High Plains Region has the same maximum impact, but the number of households projected to be impacted by less than \$10 is slightly less than 95% in all scenarios.

B. Interpretation of the Results

It is difficult to generalize the results of the 297 scenarios just summarized. It is safe to say that, except for a couple of scenarios in the Colorado, Utah, Great Basin, and Rocky Mountain Regions, impacts on individual households will be negligible. Moreover, even in these few scenarios, only 10% of the population is affected in any major way. It would appear, that on the basis of self-interest alone, there would be a minimum of support or opposition for the proposed WAPA marketing program changes.

Note also that there are no adverse effects from a normative distributional standpoint either. Given the linearity of our model, changes in income in a given sector are distributed in a manner proportional to the distribution of baseline income. The regional income distribution is affected only by changes in the output mix. That is, if a given sector has an income recipient profile that is skewed toward upper income groups and that sector is stimulated greatly by a given scenario, the overall income distribution of the region will become less egalitarian. At first glance, this would appear to be the case for the electric utility sector, which has a somewhat skewed wage/salary distribution because of the relatively high skill levels required. However, the income changes of the policy scenarios are so small as to have little effect on the overall income distribution. The linearity effect of our model is also indicated by the fact that higher income change impacts (both positive and negative) typically go to those in higher income brackets (see Appendix D). Again, though, the small number of people whose income changes greatly, say, by more than \$1,000, is so small that the effects cannot be considered to affect overall regional equity.

Given the many assumptions that we discussed earlier, the question might arise to how sensitive our results are to reasonable changes in conditions (e.g., decisions to hire new workers or the

TABLE 8

11-Jun
16 12

TABLE 2. INDIVIDUAL IMPACT MATRIX

REGION: GREAT BASIN

Year: 1993 Alternative: 5A

(in number of people)

Income Bracket	From: To:	-10000 0	0 0	0 10	10 25	25 50	50 100	100 250	250 500	500 1000	1000 2500	2500 5000	5000 10000	10000 25000	25000	Total
Under	5000	0 0.00%	6,362 19.90%	22,921 71.69%	1,490 4.66%	946 2.96%	0 0.00%	65 0.20%	0 0.00%	189 0.59%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	31,973 100.00%
	5000 10000	0 0.00%	6,111 20.85%	14,836 50.63%	6,396 21.83%	747 2.55%	331 1.13%	634 2.16%	64 0.22%	0 0.00%	186 0.64%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	29,305 100.00%
	10000 15000	0 0.00%	5,865 21.87%	9,803 36.56%	7,154 26.68%	2,702 10.08%	187 0.70%	853 3.18%	63 0.24%	0 0.00%	185 0.69%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	26,813 100.00%
	15000 20000	0 0.00%	6,006 23.97%	7,714 30.78%	7,027 28.04%	2,952 11.78%	90 0.36%	991 3.96%	71 0.29%	0 0.00%	208 0.83%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	25,059 100.00%
	20000 30000	0 0.00%	15,535 24.64%	10,483 16.63%	15,880 25.19%	15,656 24.83%	1,981 3.14%	2,722 4.32%	200 0.32%	0 0.00%	584 0.93%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	63,041 100.00%
	30000 40000	0 0.00%	6,636 25.41%	3,302 12.64%	4,981 19.08%	5,980 22.90%	3,573 13.68%	538 2.06%	742 2.84%	92 0.35%	0 0.00%	268 1.02%	0 0.00%	0 0.00%	0 0.00%	26,110 100.00%
	40000 50000	0 0.00%	5,113 25.80%	2,218 11.19%	2,368 11.95%	5,904 29.80%	2,344 11.83%	802 4.05%	778 3.92%	74 0.37%	0 0.00%	215 1.09%	0 0.00%	0 0.00%	0 0.00%	19,816 100.00%
	50000 60000	0 0.00%	3,765 26.04%	1,493 10.33%	498 3.45%	5,555 38.43%	1,781 12.32%	487 3.37%	660 4.56%	56 0.38%	0 0.00%	162 1.12%	0 0.00%	0 0.00%	0 0.00%	14,457 100.00%
	60000 70000	0 0.00%	2,537 26.20%	952 9.83%	336 3.47%	2,128 21.97%	2,830 29.23%	306 3.16%	447 4.62%	0 0.00%	38 0.39%	0 0.00%	110 1.14%	0 0.00%	0 0.00%	9,683 100.00%
	70000 90000	0 0.00%	3,017 25.76%	1,089 9.30%	372 3.18%	2,585 22.06%	3,165 27.02%	792 6.76%	515 4.39%	0 0.00%	46 0.39%	0 0.00%	133 1.14%	0 0.00%	0 0.00%	11,713 100.00%
Over	90000	0 0.00%	81,803 24.07%	232,832 68.51%	8,017 2.36%	12,749 3.75%	0 0.00%	1,136 0.33%	0 0.00%	3,311 0.97%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	339,848 100.00%
		0 0.00%	142,749 23.88%	307,644 51.46%	54,520 9.12%	57,903 9.69%	16,280 2.72%	9,328 1.56%	3,540 0.59%	3,721 0.62%	1,247 0.21%	645 0.11%	243 0.04%	0 0.00%	0 0.00%	597,820 100.00%

16 4858

TABLE 10

15-Jun
13.07

TABLE 2. INDIVIDUAL IMPACT MATRIX

REGION: GREAT BASIN

Year: 1993 Alternative: INDIRECT

(in number of people)

Income Bracket	From: To:	-10000 0	0 0	0 10	10 25	25 50	50 100	100 250	250 500	500 1000	1000 2500	2500 5000	5000 10000	10000 25000	25000	Total
Under	5000	0 0.00%	6,551 20.49%	22,921 71.69%	1,490 4.66%	946 2.96%	0 0.00%	65 0.20%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	31,973 100.00%
5000	10000	0 0.00%	6,297 21.49%	14,836 50.63%	6,396 21.83%	747 2.55%	331 1.13%	634 2.16%	64 0.22%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	29,305 100.00%
10000	15000	0 0.00%	6,050 22.56%	9,803 36.56%	7,154 26.68%	2,702 10.08%	187 0.70%	853 3.18%	63 0.24%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	26,813 100.00%
15000	20000	0 0.00%	6,214 24.80%	7,714 30.78%	7,027 28.04%	2,952 11.78%	90 0.36%	991 3.96%	71 0.29%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	25,059 100.00%
20000	30000	0 0.00%	16,119 25.57%	10,483 16.63%	15,880 25.19%	15,656 24.83%	1,981 3.14%	2,722 4.32%	200 0.32%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	63,041 100.00%
30000	40000	0 0.00%	6,903 26.44%	3,302 12.64%	4,981 19.08%	5,980 22.90%	3,573 13.68%	538 2.06%	742 2.84%	92 0.35%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	26,110 100.00%
40000	50000	0 0.00%	5,328 26.89%	2,218 11.19%	2,368 11.95%	5,904 29.80%	2,344 11.83%	802 4.05%	778 3.92%	74 0.37%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	19,816 100.00%
50000	60000	0 0.00%	3,927 27.16%	1,493 10.33%	498 3.45%	5,555 38.43%	1,781 12.32%	487 3.37%	660 4.56%	56 0.38%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	14,457 100.00%
60000	70000	0 0.00%	2,647 27.33%	952 9.83%	336 3.47%	2,128 21.97%	2,830 29.23%	306 3.16%	447 4.62%	0 0.00%	38 0.39%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	9,583 100.00%
70000	90000	0 0.00%	3,150 26.89%	1,089 9.30%	372 3.18%	2,585 22.06%	3,165 27.02%	792 6.76%	515 4.39%	0 0.00%	46 0.39%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	11,713 100.00%
Over	90000	0 0.00%	85,114 25.04%	232,832 68.51%	8,017 2.36%	12,749 3.75%	0 0.00%	1,136 0.33%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	339,848 100.00%
		0 0.00%	148,300 24.81%	307,644 51.46%	54,520 9.12%	57,903 9.69%	16,280 2.72%	9,328 1.56%	3,540 0.59%	221 0.04%	83 0.01%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	597,820 100.00%

8 3548

TABLE 11

20-May 13 39		REGION: GBASIN TABLE 2. INDIVIDUAL IMPACT MATRIX Year: 1993 Alternative: UPPER														
Income Bracket	From: To:	-10000 0	0 0	0 10	10 25	25 50	50 100	100 250	250 500	500 1000	1000 2500	2500 5000	5000 10000	10000 25000	25000 Total	
Under	5000	0 0.00%	6,362 19.90%	16,292 50.96%	7,286 22.79%	833 2.61%	946 2.96%	65 0.20%	0 0.00%	0 0.00%	189 0.59%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	31,973 100.00%
5000	10000	0 0.00%	6,111 20.85%	6,129 20.91%	8,707 29.71%	6,396 21.83%	747 2.55%	965 3.29%	0 0.00%	64 0.22%	0 0.00%	186 0.64%	0 0.00%	0 0.00%	0 0.00%	29,305 100.00%
10000	15000	0 0.00%	5,865 21.87%	5,193 19.37%	8,123 30.29%	3,642 13.58%	2,702 10.08%	1,040 3.88%	0 0.00%	63 0.24%	0 0.00%	185 0.69%	0 0.00%	0 0.00%	0 0.00%	26,813 100.00%
15000	20000	0 0.00%	6,006 23.97%	3,820 15.25%	5,767 23.01%	5,154 20.57%	2,952 11.78%	436 1.74%	644 2.57%	71 0.29%	0 0.00%	208 0.83%	0 0.00%	0 0.00%	0 0.00%	25,059 100.00%
20000	30000	0 0.00%	15,535 24.64%	8,599 13.64%	2,159 3.43%	15,605 24.75%	15,656 24.83%	1,981 3.14%	2,722 4.32%	200 0.32%	0 0.00%	584 0.93%	0 0.00%	0 0.00%	0 0.00%	63,041 100.00%
30000	40000	0 0.00%	6,636 25.41%	2,998 11.48%	454 1.74%	4,831 18.50%	5,980 22.90%	3,666 14.04%	445 1.71%	742 2.84%	92 0.35%	0 0.00%	268 1.02%	0 0.00%	0 0.00%	26,110 100.00%
40000	50000	0 0.00%	5,113 25.80%	1,724 8.70%	608 3.07%	2,253 11.37%	5,904 29.80%	2,941 14.84%	205 1.04%	778 3.92%	74 0.37%	0 0.00%	215 1.09%	0 0.00%	0 0.00%	19,816 100.00%
50000	60000	0 0.00%	3,765 26.04%	862 5.96%	632 4.37%	498 3.45%	5,555 38.43%	1,781 12.32%	487 3.37%	660 4.56%	56 0.38%	0 0.00%	162 1.12%	0 0.00%	0 0.00%	14,457 100.00%
60000	70000	0 0.00%	2,537 26.20%	555 5.73%	396 4.09%	336 3.47%	2,128 21.97%	2,830 29.23%	306 3.16%	447 4.62%	38 0.39%	0 0.00%	0 0.00%	110 1.14%	0 0.00%	9,683 100.00%
70000	90000	0 0.00%	3,017 25.76%	636 5.43%	461 3.93%	364 3.11%	2,585 22.06%	3,613 30.85%	344 2.93%	515 4.39%	46 0.39%	0 0.00%	0 0.00%	133 1.14%	0 0.00%	11,713 100.00%
Over	90000	0 0.00%	81,803 24.07%	117,057 34.44%	115,775 34.07%	8,017 2.36%	12,749 3.75%	1,136 0.33%	0 0.00%	0 0.00%	3,311 0.97%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	339,848 100.00%
		0 0.00%	142,749 23.88%	163,866 27.41%	150,367 25.15%	47,931 8.02%	57,903 9.69%	20,454 3.42%	5,154 0.86%	3,540 0.59%	3,805 0.64%	1,163 0.19%	645 0.11%	243 0.04%	0 0.00%	597,820 100.00%

fact that electricity production changes are likely to be concentrated in the Great Basin Region). We, therefore, ran two sensitivity tests and present them below in contrast to our original simulation of Scenario 5A, reproduced here from Appendix D as Table 8.

We performed an analysis of what would happen if all of the income gains in the electric utility sector in the Great Basin Region were to go to new employees (recall Case 7 of Chart A on p. 23). The results are presented in Tables 9 and 10 in terms of Individual Impact Matrices for scenario 5A in 1993. Note that in Table 9, which measures the *direct* impacts, 234 people, who previously made under \$5,000, now receive income gains greater than \$25,000 annually (the average annual salary in the electric utility sector in this Region is around \$40,000). Our assumption here is that all new jobs go to those previously unemployed, and our analysis could be modified accordingly for other assumptions. These 234 people are likely to be very supportive of any policies that would increase their incomes to this level, but they represent less than .0005% of the region's population. Note that we assumed that new jobs would only be forthcoming in conjunction with direct income effects, and thus the *indirect* impacts presented in Table 9 are unchanged from those of our original simulation. The reason this is likely is that income gains in any of these sectors are likely to be so small as not to involve employment increases of more than a few people; therefore, it is still reasonable to assume that overtime work is just as likely as new employment for these sectors.

We also ran an alternative test for scenario 5A involving the possibility that more production increases would be localized in the Great Basin Region. That is, even though demand increases would emanate from Utah Metro and Nevada Metro Regions, the actual production multipliers would emanate from the Great Basin Region, where the hydroelectric power is generated. Our upper-bound estimate in this case is to double the direct income change felt in the Great Basin. Although this is a significant amount in dollars (equal to 10 million annually), the change in the IIM is modest (compare Table 11 with Table 8). It is felt most in some higher income change brackets. Now about 95% of the population receive less than \$100, where in our original simulation 95% received less than \$50. Also, where the maximum individual impacts previously were \$5,000, they are now in the \$10,000 to \$25,000 range. Still, this pertains only to 243 households, or less than .0005 of the total population in the region.

IX. FURTHER REFINEMENTS

Several improvements in the methodology used to produce this report are in progress. First is the refinement of ways to construct income distribution matrices from the bottom-up, i.e., utilizing more primary data. The release of regional industry/occupation matrices by the Bureau of the Census in Fall 1993 will facilitate this endeavor. In addition, more data are being gathered on capital-related income. Even though this was a negligible consideration in the WAPA Region, there are many other applications where capital-related income is very important. Still, one major refinement needs to be completed in order to bring this portion of the methodology to fruition. That is, a way to bridge individual households to multiple sector sources of dividends, interests, royalties, etc.

A major improvement is still required to make the methodology practical for running many large-scale scenarios. Because we utilize a combination of computerized systems (such as IMPLAN), large databases, and spreadsheet programs, it was necessary to go back and forth between these various formats. This made the work especially cumbersome. We will endeavor to streamline the algorithm and find a more unified way of performing multiple scenario analyses in the future.

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