

ALASKA LEGISLATURE COMMITTEE FILES 1987-1988 8672

4906 HRES RAILBELT ENERGY - SNOW MACHINES

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# UPLAN INTRODUCTION

## The Electric Utility Planning System

The Electric Utility Planning System (UPLAN) is a powerful simulation tool designed to facilitate the analysis and evaluation of demand, supply and financial options facing utilities.

This sophisticated, yet easy to use, system expands the decision-making process by combining demand-side management (DSM), optimal generation planning, production costing, reliability analysis, economic analysis and financial planning in a unified operating environment.

## Comprehensive Modeling System

UPLAN offers advanced modeling capabilities for:

- Multi-area Production Costing
- Chronological Dispatch of Time-Dependent Resources
- Hourly Marginal Costing
- Optimal Generation Planning
- Reliability Analysis
- Revenue Requirements and Economic Analysis
- DSM Benefit Analysis
- Integrated Demand/Supply and Financial Planning
- Uncertainty Simulation
- Cost of Service Determination

## UPLAN in Action

Since the systems' first commercial introduction in 1984, UPLAN electric utility planning systems have found broad service in utility and research studies. UPLAN has demonstrated the accuracy, speed, ease of use, and dependability needed to support critical testimony.

The range of applications which UPLAN can address is very wide. Some UPLAN studies already completed include:

- Demand-side management evaluation in California
- Resource planning and marginal cost analysis for West Coast utilities
- Estimation of region-wide benefits of demand-side management programs for EPRI regional system

- Merger analysis and testimony in the Northeast
- Long-term avoided cost analysis of cogeneration in Maine
- Risk and financial analysis in Texas
- Strategic planning, fuel planning, and short-term avoided cost analysis in the Northeast
- Least-cost resource planning in Nevada
- Regional resource adequacy assessment by the U.S. Congressional Office of Technology Assessment
- Optimal resource mix identification and service area benefits assessment in the Northwest
- Minimum-load studies for a West Coast utility

# UPLAN INTERFACE

UPLAN is an easy-to-run interactive software package consisting of a series of interrelated modules that simulate the planning process. The system uses multiple windows, function keys, on-screen help, and dedicated data entry editors to provide a user-friendly environment for entering, viewing, and on-screen editing tables and graphs.

## Window Based System

UPLAN communicates with the user through extensive use of windows. These windows help organize and present related data in a logical and easy-to-follow way. The system uses several types of windows, such as:

- Command menu windows
- File choice windows
- Report windows
- Status and help windows

Command menus are used to choose and execute modules in UPLAN. These menus are

organized hierarchically: if a command has a series of subcommands, secondary or sub-menus are displayed on the screen.

## Function Keys

Predefined function keys, displayed on the appropriate menu, allow the user to instruct the system to perform transactions such as help, show, save, delete and print.

## On-line Help

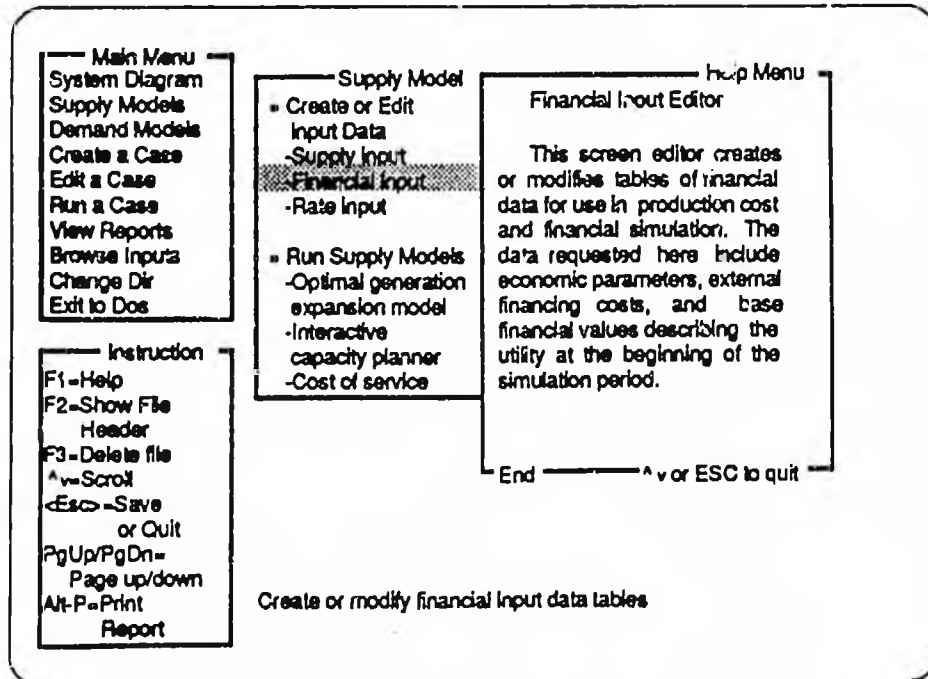
The on-line help facility provides detailed information about individual modules, as well as a system diagram that explains schematically the data and logic flow typical of any UPLAN study.

## Data Entry Editors

To create and edit data, UPLAN provides customized screen editors. Each class of input data; supply, financial, and load, has its own individually tailored screen-editor.

## UPLAN Unified Operating Environment

UPLAN's window based batch-interactive operating system manages both the system of models and the data base.



# UPLAN SUPPLY-SIDE MODELS

UPLAN has supply-side modules for:

- Production Costing
- Chronological Production Costing
- Marginal Costing
- Optimal Generation Planning
- Reliability Analysis
- Economic Analysis
- Interactive Capacity Planning
- Uncertainty Simulation

## PRODUCTION COSTING

UPLAN incorporates a two-area probabilistic costing simulation algorithm to provide fast and accurate month-by-month unit-by-unit production costing for up to 30 years.

Each generating unit can be specified to be primarily dedicated to either the native area or a

secondary service area. For the native service area, UPLAN uses the Mixture of Normal Approximation (MONA) algorithm. The MONA technique has proved superior to conventional production costing methods because the load is represented by a combination of distributions rather than by the single distribution common to traditional methods.

Production costing features include:

- Hydro optimization
- Pumped storage dispatch
- Power purchase modeling
- Multiple-block treatment of units
- Non-economic dispatch capability
- Unit commitment algorithm
- Chronological dispatch of time-dependent units

## Production Cost Report: Annual Detail

UPLAN produces several production cost reports with varying degree of detail. The reports are:

- Unit-by-unit monthly report
- Unit-by-unit annual report
- Aggregate fuel report
- Summary report
- 2nd area dispatch report

Main Menu      Detail

c:\up\data\SAMPLE1.DTL      Screen 1

RNM file:c:\NEWDEMO2.RNM-Change case sample run  
Supply file:c:\NEWDEMO2.SPM-Base case sample run

SYSTEM REPORT FOR YEAR 1985

ENERGY (GWh)		RELIABILITY		COSTS(M\$)	
Demand	16402.17	PK Load (MW)	3215.30	Fix O&M	32.50
Unserve	49.95	Capacity (MW)	4080.00	Var O&M	17.45
Not Gen.	16352.22	Reserve (%)	26.89	Consum.	4.73
Storage	96.01	LOEP (%)	0.303	Fuel	272.06
Total Gen	16448.23	LOLP (Dys/Yr)	7.410	Total	256.74

Unit Name	Capacity Factor	Energy (GWh)	Cost in \$1,000		Total Cost
			Var O&M	Fuel Cost	\$(/MWH)
NUC0800	71.23	4991.55	8485.63	44620.87	53106.50
COL6SUB	75.14	3349.57	3949.57	62156.42	66105.99
COL6SPRF	64.34	3381.80	7778.15	53153.32	60931.47
COL2SUB	42.05	920.84	920.84	16322.39	17243.22
COL2SSUB	23.65	522.35	522.35	10157.07	10679.42
COAL10J	13.10	114.72	114.72	2801.75	2916.47
COAL100	9.77	85.62	85.62	2206.06	2291.68
COAL100	6.85	60.05	60.05	1620.30	1680.35
COAL100N	5.44	47.63	47.63	1298.55	1346.13

F2 Select screen, F3 Prev, F4 Next, F9 to main menu, Esc to quit, ^v, PgUp, PgDn  
Alt-P to print file

# UPLAN SUPPLY-SIDE MODELS

## CHRONOLOGICAL PRODUCTION SUBMODEL

Using this module, generating units with capacity which varies from hour to hour can be modeled directly. Planning applications for which this submodel is particularly well-suited include:

- studies of minimum loading conditions due to unit commitment requirements, qualified facilities, and other restrictions
- modeling time-varying power purchases

Under this approach, an hour-by-hour capability shape is entered for each time-varying unit, and two-pass chronological dispatch simulation is performed.

## MARGINAL COSTING

UPLAN determines the marginal cost of electri-

city by computing the probability of a unit being at a margin for a given load level.

The system reports marginal costs on an hourly, monthly percent of peak load, and percent of time basis. Marginal costs aid in the analysis of potential transactions, and can be used for rate-making.

## UNCERTAINTY SIMULATION

UPLAN's uncertainty simulation is the first of its kind for the utility industry. This option allows systematic evaluation of uncertainty and risk factors associated with alternative planning options using the Monte Carlo analysis technique.

The user may define a number of critical variables as uncertain, such as load growth, capital costs and fuel prices, and specify low, high, most-likely values for them. Based on these uncertainty variables, UPLAN processes production costing simulations and produces distributions of variable and fixed production costs and financial projections.

## Defining an Uncertainty Distribution

The range of the uncertainty variables such as load growth, capital costs and fuel prices is specified by choosing low, high and most likely values at run time.

Main Menu		Pick a unit		Progress	
System Diagram	Unit ID	Unit Name	Inst Year	In-service Date	
Supply Models	N001	NUC0800	1977		
Demand Models	C001	COL6SPRF	1974		
Create a Case	C002	COL6SUB	1967		
Edit a Case	C003	COL25SUB	1965		
Plan a Case	C004	COAL100	1962		
View Reports	ESC: Enter value				
Browse Inputs					
Change Dir					
Exit to DOS					
Instruction		ENTRIES CHOSEN		Enter Values	
F1=Help	N001	NUC0800	1977	LOW	MOST LIKELY
F2=Show File Header				1970	1980
F3=Delete file	C001	COL6SPRF	1974	1975	1985
^v=Scroll					1990
<Esc>=Save or Quit					1990
PgUp/PgDn=Page up/down					
Alt-P=Print Report					
	ESC to Exit				

# UPLAN SUPPLY-SIDE MODELS

## OPTIMAL GENERATION EXPANSION (OGE)

The OGE module determines the plant investment program that minimizes total present value of capital and operating cost over a planning horizon. This option can be used in conjunction with the price elasticity option and uncertainty simulation option.

## INTERACTIVE CAPACITY PLANNER

The interactive capacity planner can be used to quickly examine the major features of a capacity expansion plan. This module allows the user to modify the installation and retirement dates, and allows treatment of constraints which cannot be modeled with an optimization model.

### Input Data

UPLAN's requirements for supply data are extremely flexible to allow a wide-range level of detail.

To generate unit information for screening studies, data can be entered for the first year of the simulation period and remain constant throughout the life cycle of the study. For detailed analysis, unit data can be updated every study year.

Supply data includes the following:

- Capacity, installation date, and tax depreciation schedule
- Outage rates (forced and daily unavailability)
- Heat rates (four load levels and average)
- Fixed and variable O&M, consumables, and fuel costs
- Monthly energy and capacity limitation
- SO<sub>x</sub>, NO<sub>x</sub>, and particulate emissions
- Construction time and cost
- Multiple block loading
- Monthly planned maintenance schedule
- Variable cost data for second area dispatch and parameters for unit commitment algorithm.

## Supply Data Editor

With the Supply Data editor, users enter all supply system cost, engineering, and transaction information. The general unit information is the first of nine data entry screens.

File Name: c:\BASECASE.SPM

Description: Base Case Tutorial Run  
Screen One: General Unit Information

Unit ID	Unit Name	Size (MW)	Number of Units	Flue gas Scrubber (yes/no)	Super-Critical (yes/no)	Date Installed	Units 1-15	
							Book Life (Yr)	ACRS Type 1-3
N001	NUC0800	800	1	NO	NO	1977	30	1
C001	COL6SPRF	600	1	YES	YES	1974	40	2
C002	COL6SUB	600	1	NO	NO	1967	40	2
C003	COL2SSUB	250	2	NO	NO	1965	40	2
C004	COAL100	100	3	NO	NO	1962	40	2
C005	COAL100N	100	2	NO	NO	1968	40	2
CT01	CT100A	50	3	NO	NO	1972	30	1
CT02	CT100B	50	2	NO	NO	1970	30	1
CT03	CT100C	50	2	NO	NO	1975	30	1
H001	HYDRO	830	1	NO	NO	1975	45	2
PS01	PUMPSTOR	100	1	NO	NO	1975	30	1
CT04	NEWCT	200	1	NO	NO	1989	30	1

F1: Save F3: Prev F4: Next F5: Left F6: Right F10: Quit Alt-A: Insert/Delete line

## UPLAN DEMAND-SIDE MODELS

UPLAN integrates powerful demand-side capabilities with supply and financial modules. The system offers tools to:

- Manage load-side data
- Build daily load shapes libraries
- Combine daily loads to form monthly end-use loads
- Build hourly system loads
- Display graphically and modify load shapes at all levels of aggregation.

With UPLAN, a user can create an annual load shape for a group of customers or appliances. This end-use annual shape can be represented by seven hourly typical shapes for each month. In this manner, demand-side programs, which have been targeted for a particular customer class, can be analyzed individually.

## GRAPHICAL MODIFICATION OF LOAD SHAPES

UPLAN can automatically modify load shapes to accommodate specified user requirements.

### Modify Annual Load Shapes

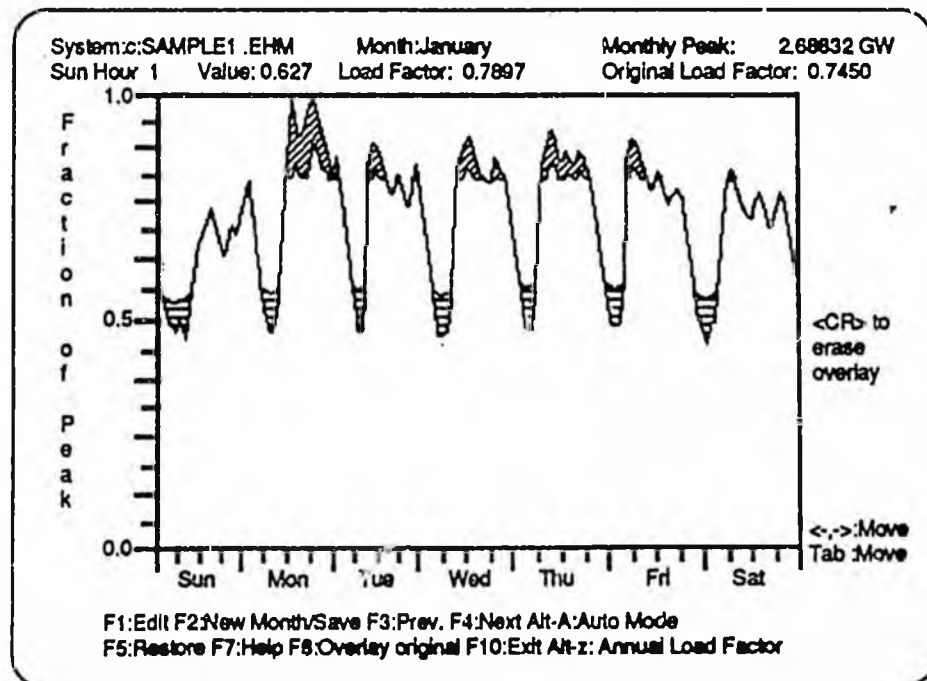
The Annual Load Shape Graphics Editor graphically displays typical monthly load shapes and energies, and allows modifications to be made to these curves by directly working with graphs of the curves rather than with tables of data values.

### Modify Typical Day Type

The Typical Day Graphics editor displays a 24 hour shape created in the day type editor. Changes can be made directly on the curve: as changes are made, the underlying data base is automatically updated.

## Load Shape Editor Modify Loads and Overlay Changes

The graphic load shape editor allows on-screen load modification using the cursor keys.



# UPLAN DEMAND-SIDE MODELS

## AGGREGATE LOAD SHAPES

**Aggregation of Day Type Into End-Use Loads**  
In this module, month-by-month load shapes for end uses are created. The building blocks of an end-use shape are typical daily load shapes and energy forecasts for each day.

**Aggregation of End-Use into Annual Loads**  
This module enables the user to group monthly end-use files into monthly system load files. The module is also used to add end-uses to, or subtract end-uses from, existing system load shapes.

**Compare Two Annual Loads**  
This module computes and graphically displays differences between monthly system-wide load shapes. Differences can be used as residual load shapes.

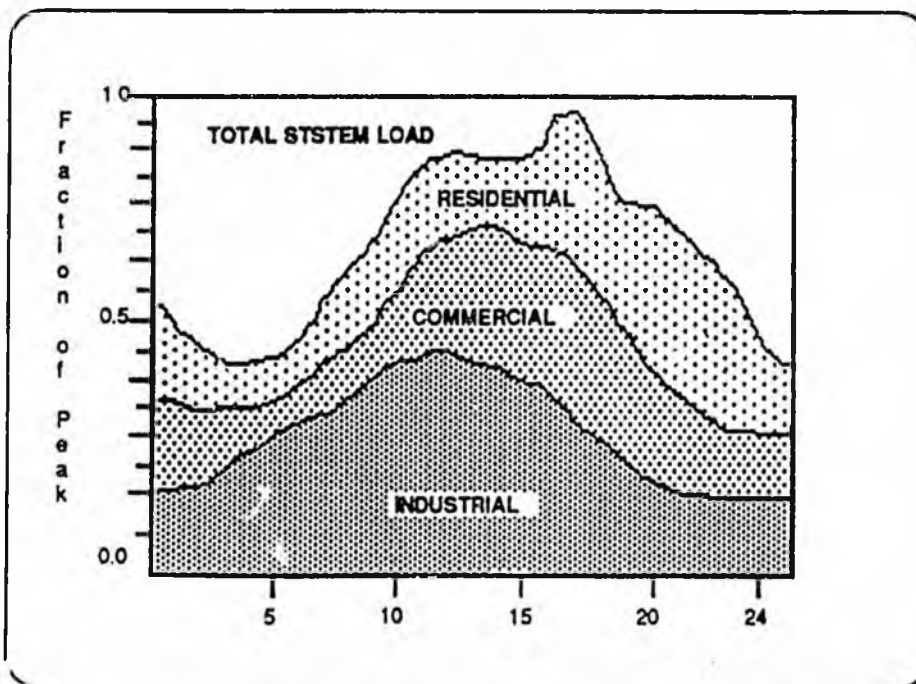
## DEMAND-SIDE MANAGEMENT

UPLAN offers two complementary models for simulating demand-side management options.

### STRATEGIC LOAD MANAGEMENT (SLM) MODEL

The SLM model handles changes at the strategic level to the load shape. Using an on-screen graphics editor, the following changes can be performed on hourly loads:

- Peak shaving
- Valley filling
- Load shifting and
- Load factor modification.



### Aggregate Load Shapes

Up to 40 end-use load shapes can be aggregated using load aggregation models.

# UPLAN DEMAND-SIDE MODELS

## PROGRAMMATIC LOAD MANAGEMENT (PLM) MODEL

The PLM model handles detailed changes to the load shape. Using a spread-sheet-like interface, specific amounts of energy may be added to, subtracted from, or shifted among hours or block of hours.

In this way, utility load data can be used in other models.

- Shifts energy from a particular hour or block of hours to other hours
- Shifts energy from classes of days to other classes
- Substitutes one day type for another day type. Useful in modeling DSM programs (DLC, appliance, AC cycling, etc.)

### Load Management Programmatic Load Changes

PLM module allows implementation of load management option interactively by specifying one of the three types of changes.

Month	Select months for demand management			
	Energy(GWH)	Peak(GW)	% of Energy	% of Peak
January	1604.524	2.95043	8.9560	84.0100
February	1547.226	2.84507	8.6361	81.0100
March	1305.832	2.63435	7.2888	75.0100
April	1253.605	2.52899	6.9972	72.0100
May	1340.649	2.70459	7.4831	77.0100
June	1581.275	3.19627	8.8262	91.0100
July	1563.900	3.16115	8.7292	90.0100
-> August	1737.474	3.51200	9.6981	100.0000
September	1497.328	3.02067	8.3576	86.0100
October	1358.058	2.73971	7.5803	78.0100
November	1445.102	2.91531	8.0661	83.0100
December	1680.729	3.09056	9.3813	88.0000

C:--Continue Esc-Quit ^, v

Select a type of shift

Hour by hour load shift
Strategic load shift
Load shift by equipment type

Esc:Quit ^, v

# UPLAN DEMAND-SIDE MODELS

## MARKET PENETRATION MODEL

The market penetration model enables the user to estimate the load shape impact and program-by-program market shares of up to twelve demand-side management (DSM) or energy marketing programs. The penetration level is calculated using a diffusion theory approach, and market shares are estimated by means of a logit-type model. The model evaluates energy changes on an hourly basis, and develops benefit-cost ratios based on levelized program cost and marginal production costs.

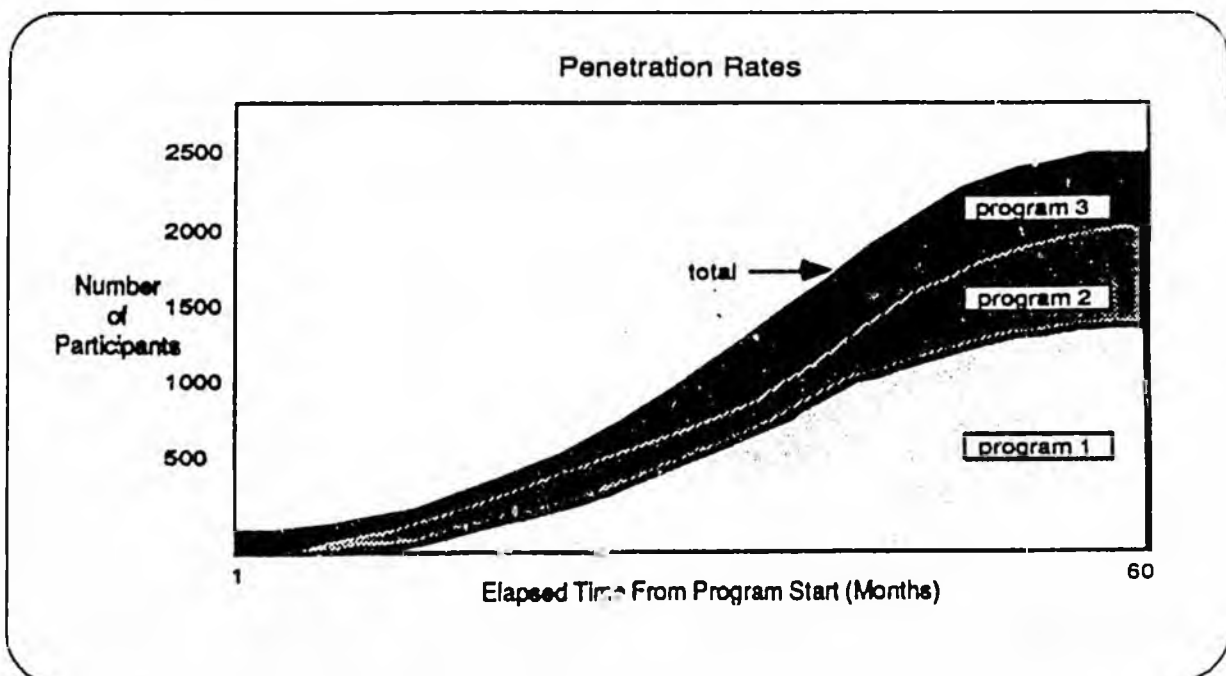
### Estimating Market Penetration and Program Market Shares

UPLAN uses diffusion theory to estimate the number of customers expected to adopt the program. The user specifies the starting date of

the program and its duration as well as the expected number of participants. UPLAN will generate an S-curve which graphically displays the level of customer participation.

### DSM Program Energy Savings

When the participation levels have been determined, the user enters the seasonal energy savings by time-of-use periods. When more than one program is specified, a cost-effectiveness measure is used to determine program market shares. UPLAN uses an iterative procedure to estimate a stable level of market penetration among programs. Hourly marginal costs for the specific customer classes are required for this calculation.



# UPLAN DEMAND-SIDE MODELS

## BENEFIT-COST ANALYSIS FOR DEMAND-SIDE MANAGEMENT (DSM) PROGRAMS

The UPLAN benefit-cost model uses avoided costs from production cost simulation to estimate benefit-cost ratios, net present value, and rate impacts for demand-side management (DSM) programs. These estimates are developed and reported on a class-by-class basis for each customer class, and for the utility.

### Benefit-Cost Calculation

The benefit calculation for a DSM program is

based on the avoided costs associated with the program for each class of customer. The energy component of avoided cost is allocated among the customer classes on an hourly basis.

Capacity savings are allocated across classes using a coincident peak rate design method. Rate impacts are calculated, and using the rate impact measure information, benefit-cost ratios and net present program value are calculated for each customer class.

### UPLAN Benefit- Cost Model Output Report

c:\upindata\SAMPLE .CBO

<u>UPLAN Benefit-Cost</u>			
Class	PV Rate Impact 1986 mills/kWh	B/C per Customer	NPV (\$/customer)
Participants:			
Class 2	-35.420	19.19	562.54
Non-Participants			
Class 1	0.714	0.00	-166.70
Class 3	0.863	0.00	-140.76
Class 4	0.538	0.00	-160.95
Utility:	0.008	0.00	-45.05

Esc: Return to Main Menu. Alt-P: Print Screen.

# UPLAN FINANCIAL MODELS

## Financial Simulation

UPLAN has three financial models:

- Strategic Model
- Long Range Model
- Short-term Tactical Model

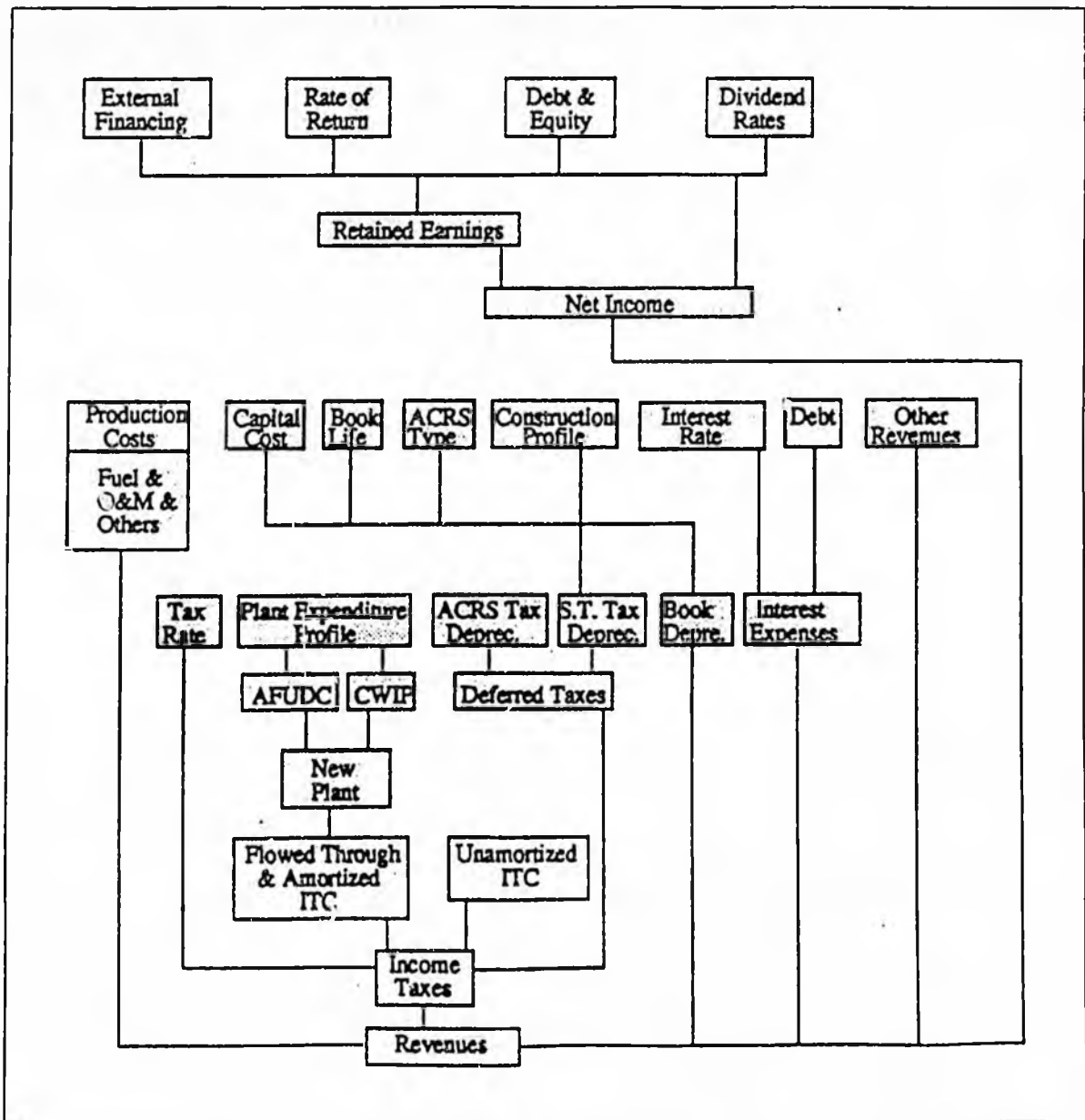
The Strategic Financial Model determines the net income, retained earnings, income taxes and required revenue on an annual basis. The other two models are written in IFPS, the fourth generation

financial language. These two models can be used where greater detail is required. Additionally, the users can modify the codes to meet their individual needs.

The Strategic Model produces:

- Annual balance sheets
- Income statements
- Flow of funds statements
- Financial report summaries

## Strategic Financial Model



# UPLAN FINANCIAL MODELS

## COST OF SERVICE

The Cost of Service module uses the time-of-day rate structure. This module is used to compute both time-differentiated and nontime-differentiated rates for up to twelve customer rates.

The standard module allocates energy-related

costs using the time-differentiated marginal cost method, while the fixed cost is distributed by non-coincident peak responsibility. If necessary, USAM Center can customize the Cost-of-Service module for other rate-making methodologies.

### Rate Report: Peak-Period Changes

Rate report produces rates by customer classes for peak period, off-peak period and average base. Up to 12 customer classes can be specified.

Main Menu		Rate Reports			Screen 1
c:\up\data\SAMPLE1.COS					
Distribution of Rates Prior to Adjustment					
Peak Period					
Year 1990					
Customer Class (Mills/KWH)					
	Class 1	Class 2	Class 3	Average	
Generation					
Energy	16.70	20.04	15.18	17.33	
Customer	0.00	0.00	0.00	0.00	
Demand	3.95	4.74	3.59	4.10	
Transmission					
Energy	0.00	0.00	0.00	0.00	
Customer	0.00	0.00	0.00	0.00	
Demand	4.70	5.36	6.26	5.42	
Distribution					
Energy	0.43	0.51	0.39	0.44	
Customer	7.21	4.88	0.38	4.25	
Demand	1.50	1.80	1.37	1.56	
Total	34.49	37.33	27.17	33.09	

F2 Select screen, F3 Prev, F4 Next, F9 to main menu, Esc to quit, ^, v, PgUp, PgDn  
Alt-P to print file

# UPLAN FINANCIAL MODELS

## LONG-RANGE FINANCIAL MODEL

The UPLAN Long-Range Financial Model simulates utility financial operations on an annual basis in full detail. While the Long-Range Model is completely integrated with the UPLAN system, it can also be customized by the user to meet the particular modeling needs and reporting requirements of the individual utility.

The LRFM simulates utility financial operations to determine annual external financing requirements and rate adjustments. It also simulates revenue and revenue requirements, and calculates the effects of regulatory lag. The principal driver of the model can either be rate of return or rates. The long-range model's major features include:

- fuel inventory modeling
- project construction analysis
- detailed tax modeling
- explicit regulatory lag simulation
- project-level accounting
- extended external finance options

Six standard reports are produced by the model. These reports include income statements, O&M breakdown, sources and uses of funds, balance sheet, financial performance, financial

statistics, coverage ratios, electric rates, and sources of contributions to revenue.

The long-range model makes use of the IFPS Interactive Financial Planning System. IFPS is a fourth-generation interactive financial modeling language. IFPS includes facilities which enable the financial planner to easily modify the default model to customize the content and layout of reports.

## SHORT-TERM TACTICAL MODEL

The Short-Term Tactical Model offers highly detailed, month-by-month financial simulation and reporting. The model's design support the tracking of short-term flows and budgeting. It includes disaggregate monthly reporting of revenues, broken out by major customer class, current and deferred tax status, operating revenues and expenses, interest expenses by call of investment, and full financial and operating statistics, including Moody's ratios, key financial indicators, and rates. The model allows customization of plant accounting, rate calculations, revenue calculations, and fuel clause adjustment mechanisms.

Like the Long Range Financial Model, the Short-Term Tactical Model makes use of the IFPS Interactive Financial System.

# UPLAN REPORT WRITERS

## REPORTING

UPLAN produces a wide range of reports. These reports summarize the results of supply, demand and financial models. The number of reports and the level of detail in these reports

can be controlled by the users.

UPLAN command menus are used to select, display and print all reports produced by UPLAN.

### Detail Finance Report: Financial and System Performance

Financial Model reports include:

- Balance Sheet
- Income Statement
- Flow of Funds
- Supplemental Reports

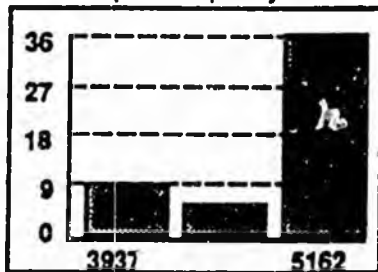
Main Menu		Detail Finance			
c:\up\data\SAMPLE1.FDL					
Screen 3					
RNM file:c:\NEWDEMO.RNM-DEMO					
Supply file:C:\DEMO.SPM-Demonstration supply data file					
System and Financial Report					
	1990	1991	1992	1993	
Energy Demand (Billion KWH)	18.23	18.43	18.68	18.79	
Peak Load (Megawatts)	3562.00	3600.00	3650.00	3670.00	
Capacity Margin(%)	19.05	22.58	21.51	31.08	
Reserve Margin (%)	23.53	29.17	27.40	26.70	
Fuel Price (\$/MWH)	17.72	18.92	20.77	22.63	
Base Price (\$/MWH)	46.89	53.91	54.92	62.16	
Total Price (\$/MWH)	64.61	72.84	75.69	84.79	
Base Price Increase (M\$)	635.97	128.41	18.85	138.06	
Return on Equity (%)	10.00	10.00	10.00	10.00	
Earnings Per Share (\$)	\$ 1.05	\$ 1.78	\$ 1.76	\$ 1.95	
# of Shares Outstanding	53.55	56.78	58.57	75.83	
Market Price-Common Stock\$	20.00	18.93	20.77	22.77	
Book Value/Share-Common \$	17.21	18.89	20.70	22.92	
Interest Coverage Ratio	1.258	1.398	1.373	1.236	
Ext. Fina. as % of Construc.	4531.23	86.16	49.44	81.29	
PV of Revenue Req. (M\$)	1,177.63	2,471.40	3,784.75	5,251.39	
Smoothed Elec. Cost(\$)	64.61	68.67	70.98	74.34	

F2 Select screen, F3 Prev, F4 Next, F9 to main menu, Esc to quit, ^, v, PgUp, PgDn  
Alt-P to print file

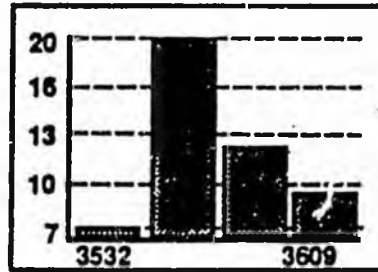
### Uncertainty Outcome: Frequency Plots

The results of the UPLAN Uncertainty Model are shown as frequency charts as well as in tables and sample statistics.

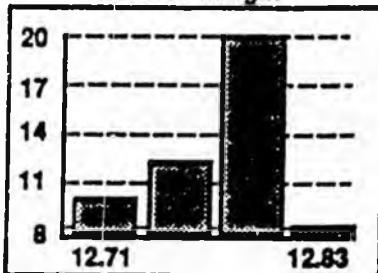
Nameplate Capacity



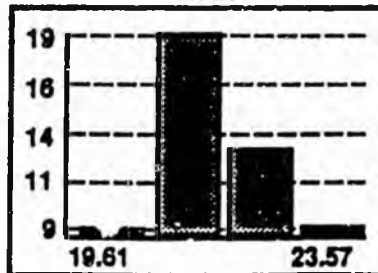
Peak Load



Reserve Margin



LOLP



# UPLAN REPORT WRITERS

## UPLAN Report Types

<i>Name of Report</i>	<i>Description</i>
Summary	System-wide summary production cost reports, to both deterministic and uncertainty cases.
Aggregate	Aggregate annual production cost reports, with generating units grouped by fuel type.
Detail	Annual unit-by-unit production cost reports for standard production cost and second area dispatch cases.
Monthly	Month-by-month, unit-by-unit production cost reports for standard production cost and second area dispatch cases.
Marginal Cost	Annual and monthly marginal costs at percentages of peak load.
Time of Day	Hour-by-hour marginal costs.
Percent of Time	Expected marginal costs along the time axis of the load duration curve.
Summary Finance	Summary financial indicators for the full study period.
Detail Finance	Detailed annual financial reports.
2nd Area Detail	Annual detailed production reports from the second area dispatch model.
2nd Area Monthly	Monthly detailed dispatch reports from the second area dispatch model.
Opt Exp Report	Optimal generation expansion plan report.
Cost of Service	Cost per KWH for residential, commercial and industrial customers (selected customer classes) for generation, transmission and distribution.

These reports can also be transferred to Lotus 1-2-3 or Symphony spread sheet/graphic package. In this way the user can develop custom-

ized reports and charts. Customized spread sheets and interfaces to financial language package are available from the USAM Center.

## About USAM Center

The Utility Software and Modeling Center offers a full range of software products and consulting services in support of electric utility system analysis. Since 1982, we have served the utility industry with:

- basic research in utility modeling methods
- software development of utility planning tools
- consulting, study design and execution for supply-side and demand-side studies
- training and customer support in utility planning methods and in the use of our software systems
- expert witness testimony

Our commitment to complete client support is indicated by the range of our services.

### Training and Seminars

USAM Center offers both specific training in the use of UPLAN and special topic seminars on techniques for strategic planning. Training in the use of our models is provided either at our facility in Los Altos or at a client's home site.

### Users Group

Active UPLAN Users' Groups exist throughout the United States. The groups teleconference and meet periodically to exchange ideas and techniques about the use of UPLAN in modeling different utility problems.

### Advisory Council

The UPLAN Advisory Council offers high level, independent evaluation and recommendations for UPLAN system extensions and enhancements. For a list of current members, please contact USAM Center

## Support Services

USAM Center provides complete client support for our utility modeling systems. These are available through:

### • Telephone hotline service:

Our technical analysts are available to respond to inquiries concerning UPLAN software, and responses are provided within a single working day.

### • On-site visits:

Our client service staff is available for support to review and recommend UPLAN applications and trouble-shoot problem areas.

### • Consulting services:

Our consulting staff has the experience and capabilities to support our clients needing assistance to meet strict deadlines and special project requirements including:

- Least-Cost Resource Planning Studies
- Regulatory Analysis and Expert Testimony
- Strategic Planning and Scenario Analysis
- Custom Utility Model Development
- Litigation Support

### • USAM Center Newsletter:

The *Newsletter* is published quarterly. It provides a forum for users and other interested parties to exchange ideas and methods about the use of our planning system. The *Newsletter* includes correspondence from users, new product and update information, and general and technical planning articles, and ways to tame Julie.

### **Least-Cost Utility Planning**

- UPLAN integrates Demand-Side and Supply-Side options to develop the least-cost resource plan which satisfies economic, reliability, and financial criteria.
- UPLAN includes a comprehensive financial model for evaluating the impact of the least-cost plan on the utility's financial integrity.
- UPLAN includes optional operation planning, production costing, reliability analysis, and uncertainty models to facilitate development of a least-cost plan that is flexible in coping with risk, considering uncertainties such as load growth, capital costs, and fuel costs.

## HARDWARE REQUIREMENTS

Computer:	IBM PC/XT/AT, 3270-PC/AT or compatibles
Memory:	Minimum 640KB (Optional: 4MB RAM Disk)
Hard disk:	Required (code: 1.75MB, data: 1.5MB)
Mathematical coprocessor:	8087/80287 math coprocessor required
Display:	IBM color graphics adapter, enhanced graphics adapter, or compatibles

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### USAM CENTER

Utility Software and Modeling Center  
4962 El Camino Real  
Los Altos, CA 94022  
(415) 962-9670

## 8.2. Supply Input Data Sets

Table 8.2.1

ANCHORAGE-COOK INLET AREA EXISTING PLANT DATA, DEC. 1984 (Page 1 of 3)

Unit Name	Operation Period		Generating Capacity 30°F (MW)	Heat Rate @ Gen. Capacity (Btu/kWh)	O&M Costs (1985 \$)		Outage Rates	
	Online Date	Retire Date			Fixed (\$/kW/yr)	Variable (\$/MWh)	Planned Outage (%time)	Forced Outage (%time)
<u>Alaska Power Administration</u>								
Eklutna	1955	2055	30.0	-	-	19.0	-	-
<u>Anchorage Municipal Light and Power</u>								
AML PCT#1	1962	1990	16.2	15,329	10.12	5.67	12.0	5.0
AML PCT#2	1964	1990	16.2	15,329	10.12	5.67	9.7	5.0
AML PCT#3	1968	1991	19.9	14,089	10.12	5.67	12.3	5.0
AML PCT#4	1972	1992	33.8	13,901	10.12	5.67	13.5	5.0
AM CC#56	1979	1999	47.5	10,570	12.79	0.92	11.0	5.0
AM CC#76	1979	1999	109.3	9,365	12.79	0.92	11.0	5.0
AML PCT#8	1984	2009	87.0	12,000	12.79	0.92	14.8	5.0
Total AMLP Capacity			329.9					

Table 8.2.1

Unit Name	Operation Period		Generating Capacity 30°F (MW)	Heat Rate @ Gen. Capacity (Btu/kWh)	O&M Costs (1985 \$)		Outage Rates	
	Online Date	Retire Date			Fixed (\$/kW/yr)	Variable (\$/MWh)	Planned Outage (%time)	Forced Outage (%time)
<u>Chugach Electric Association</u>								
BEL CT#1	1968	1994	16.1	16,100	11.21	1.40	10.3	5.0
BEL CT#2	1968	1994	16.1	16,100	11.21	1.40	9.0	5.0
BEL CT#3	1972	1999	49.5	12,800	11.21	1.40	12.8	5.0
BEL CT#4	1976	1996	10.0	17,500	11.21	1.40	11.5	5.0
BEL CT#5	1975	1999	67.3	12,400	11.21	1.40	12.8	5.0
BEL CC#68	1976	2007	100.6	9,600	11.21	1.40	11.5	6.0
BEL CC#78	1976	2007	100.6	9,600	11.21	1.40	11.5	6.0
BERNCT#1	1963	1988	8.9	17,300	10.03	2.19	9.0	5.0
BERNCT#2	1971	1997	18.4	14,500	10.03	2.19	9.0	5.0
BERNCT#3	1978	2004	27.2	13,700	10.03	2.19	10.3	5.0
BERNCT#4	1981	2004	27.2	13,700	10.03	2.19	12.8	5.0
INT CT#1	1965	1996	14.3	18,000	19.39	13.47	7.7	5.0
INT CT#2	1968	1996	14.3	18,000	19.39	13.47	7.7	5.0
INT CT#3	1970	1996	19.9	14,500	19.39	13.47	15.4	5.0
COOPER	1960	2055	17.4	-	-	7.4	-	-
Total GEA Capacity			507.8					

Table 8.2.1

Unit Name	Operation Period		Generating Capacity @ 30°F	Heat Rate @ Gen. Capacity	O&M Costs (1985 \$)		Outage Rates	
	Online Date	Retire Date			Fixed	Variable	Planned Outage	Forced Outage
			(MW)	(Btu/kWh)	(\$/kW/yr)	(\$/MWh)	(%time)	(%time)
<u>Homer Electric Association</u>								
SELDIC#1	1952	1990	0.3	14,998	2.81	38.80	4.0	5.0
SELDIC#2	1964	1994	0.6	12,006	2.81	38.80	4.0	5.0
SELDIC#3	1970	2000	0.6	12,006	2.81	38.80	4.0	5.0
SELDIC#4	1982	2012	0.6	12,006	2.81	38.80	4.0	5.0
Total HEA Capacity			2.1					
<u>Seward Electric System</u>								
SES IC#1	1965	1990	1.5	15,000	0.59	5.72	1.0	5.0
SES IC#2	1965	1990	1.5	15,000	0.59	5.72	1.0	5.0
SES IC#3	1965	1995	2.5	15,000	0.59	5.72	1.0	5.0
Total SES Capacity			5.5					

Table 2.2

## FAIRBANKS-TANANA VALLEY AREA EXISTING PLANT DATA, DEC. 1984

Unit Name	Operation Period		Generating Capacity @ 30°F (MW)	Heat Rate @ Gen. Capacity (Btu/kWh)	O&M Costs (1985 \$)		Outage Rates	
	Online Date	Retire Date			Fixed (\$/kW/yr)	Variable (\$/MWh)	Planned Outage (%time)	Forced Outage (%time)
<u>Fairbanks Municipal Utility System</u>								
CHENST#1	1954	2000	5.1	15,968	51.12	1.22	6.0	5.0
CHENST#2	1952	2000	2.0	18,049	51.12	1.22	6.0	6.0
CHENST#3	1952	2000	1.5	18,091	51.12	1.22	6.0	6.0
CHENST#4	1963	1985	6.1	12,894	8.76 <sup>1/</sup>	0.58 <sup>1/</sup>	3.0	8.0
CHENST#5	1970	2005	20.0	14,236	73.57	0.64	6.0	6.0
CHENST#6	1976	2006	26.1	12,733	8.76 <sup>1/</sup>	0.58 <sup>1/</sup>	3.0	8.0
FMUSIC#1	1967	1992	2.8	12,128	0.87	22.82	2.0	5.0
FMUSIC#2	1968	1992	2.8	12,128	0.87	22.82	2.0	5.0
FMUSIC#3	1969	1992	2.8	12,128	0.87	22.82	2.0	5.0
Total FMUS Capacity			69.2					
<u>Golden Valley Electric Association</u>								
HEALST#1	1967	2002	25.0	12,750	69.96	4.11	7.0	1.8
HEALIC#2	1967	1997	2.6	11,210	0.59	5.72	20.0	1.0
NOPOCT#1	1976	2006	60.9	9,500	7.42	1.43	15.0	1.0
NOPOCT#2	1977	2007	60.9	9,500	7.42	1.43	15.0	1.0
ZEN CT#1	1971	2001	18.0	14,869	8.79	0.59	15.0	1.0
ZEN CT#2	1972	2002	18.0	14,869	8.79	0.59	15.0	1.0
DSL IC#1	1961	1991	1.9	11,209	0.59	5.72	20.0	5.0
DSL IC#2	1961	1991	1.9	11,209	0.59	5.72	20.0	5.0
DSL IC#3	1961	1991	1.9	11,209	0.59	5.72	20.0	5.0
DSL IC#5	1970	2000	2.6	11,210	0.59	5.72	20.0	5.0
DSL IC#6	1970	2000	2.6	11,210	0.59	5.72	20.0	5.0
UAF IC#7	1970	1996	1.9	11,209	0.59	5.72	20.0	5.0
UAF IC#8	1970	1996	1.9	11,209	0.59	5.72	20.0	5.0
Total GVEA Capacity			200.1					

<sup>1/</sup> Applicant's estimate of O&M costs used.

-8.2.4-

03-23-1987 13:06:34

File Name: b:KENAIRSA.SPM  
Description :Kenai Supply Model

Unit ID	Unit Name	Size (MW)	Number of Units	Flue gas Scrubber (yes/no)	Super-Critical (yes/no)	Date Installed	Book Life (Yr)	ACRS Type 1-3
bernct2	bernice2	18.0	1	no	no	1971	26	1
bernct3	bernice3	27.0	1	no	no	1978	26	1
bernct4	bernice4	27.0	1	no	no	1981	23	1
bradley	bradleyH	90.0	1	no	no	1990	65	1
cooper1	cooper H	18.0	1	no	no	1975	99	1
gtk ct1	soldatCT	38.0	1	no	no	1985	25	1
sldic2	seldic2	1.0	1	no	no	1964	99	1
sldic34	seldic34	1.0	1	no	no	1970	99	1
ses ic3	seward3	2.0	1	no	no	1965	99	1
ses ic4	seward4	2.0	1	no	no	1985	99	1
ses ic5	seward5	3.0	1	no	no	1986	99	1
ses ic6	seward6	3.0	1	no	no	1990	99	1
new ct1	new ct1	40.0	1	no	no	2004	20	1
new ct2	new ct2	40.0	1	no	no	2010	20	1
new ct3	new ct3	25.0	1	no	no	2014	25	1

File Name: b:KENAIRSA.SPM  
 Description :Kenai Supply Model

Unit ID	Unit Name	Size (MW)	Unsche. Outage Rate (%)	Daily Unavail. (%)
bernct2	bernice2	18.0	5.0	0.0
bernct3	bernice3	27.0	5.0	0.0
bernct4	bernice4	27.0	5.0	0.0
bradley	bradleyH	90.0	0.0	0.0
cooper1	cooper H	18.0	0.0	0.0
gtk ct1	soldatCT	38.0	5.0	0.0
sldic2	seldic2	1.0	5.0	0.0
sldic34	seldic34	1.0	5.0	0.0
ses ic3	seward3	2.0	5.0	0.0
ses ic4	seward4	2.0	5.0	0.0
ses ic5	seward5	3.0	5.0	0.0
ses ic6	seward6	3.0	5.0	0.0
new ct1	new ct1	40.0	8.0	
new ct2	new ct2	40.0	8.0	
new ct3	new ct3	25.0	8.0	

File Name: b:KENAIRSA.SPM  
 Description :Kenai Supply Model

Unit ID	Unit Name	Size (MW)	HEAT RATES (BTU/KWH AT % OUTPUT)				AVERAGE
			100%	75%	50%	25%	
bernct2	bernice2	18.0	14500	14805	16050		14805
bernct3	bernice3	27.0	13700	14082	15284		14082
bernct4	bernice4	27.0	13700	14082	15284		14082
bradley	bradleyH	90.0					
cooper1	cooper H	18.0					
gtk ct1	soldatCT	38.0	12785	13763	15768		13763
sldic2	seldic2	1.0	12006	12362	13667		12362
sldic34	seldic34	1.0	12006	12362	13667		12362
ses ic3	seward3	2.0	15000	15451	17064		15451
ses ic4	seward4	2.0	15000	15451	17064		15451
ses ic5	seward5	3.0	15000	15451	17064		15451
ses ic6	seward6	3.0	15000	15451	17064		15451
new ct1	new ct1	40.0					12095
new ct2	new ct2	40.0					12095
new ct3	new ct3	25.0					12095

File Name: b:KENAIRSA.SPM  
 Description :Kenai Supply Model

Unit ID	Unit Name	Size (MW)	Maximum Capacity Factor														
			Jan (%)	Feb (%)	Mar (%)	Apr (%)	May (%)	Jun (%)	Jul (%)	Aug (%)	Sep (%)	Oct (%)	Nov (%)	Dec (%)			
bernct2	bernice2	18.0															
bernct3	bernice3	27.0															
bernct4	bernice4	27.0															
bradley	bradleyH	90.0	62.4	59.4	47.2	39.6	30.4	19.9	25.9	41.9	92.5	94.1	154.8	59.4	59.4	62.4	4
cooper1	cooper H	18.0	45.7	30.4	22.8	30.4	11.4	11.4	7.6	15.2	15.2	230.4	45.7	45.7	745.7		
gtk ct1	soldatCT	38.0															
sldic2	seldic2	1.0															
sldic34	seldic34	1.0															
ses ic3	seward3	2.0															
ses ic4	seward4	2.0															
ses ic5	seward5	3.0															
ses ic6	seward6	3.0															
new ct1	new ct1	40.0															
new ct2	new ct2	40.0															
new ct3	new ct3	25.0															

File Name: b:KENAIRSA.SPM  
 Description :Kenai Supply Model

Unit ID	Unit Name	Size (MW)	Fixed O&M Cost (\$/KW-YR)	Variable O&M Cost (\$/MWH)	Cost of Consumables (\$/MWH)	Fuel Cost (\$/MBTU)	Fuel Type
bernct2	bernice2	18.0	10.230	2.23	0.0	1.60	GAS
bernct3	bernice3	27.0	10.230	2.23	0.0	1.60	GAS
bernct4	bernice4	27.0	10.230	2.23	0.0	1.60	GAS
bradley	bradleyH	90.0	24.600	0.00	0.0	0.00	WAT
cooper1	cooper H	18.0	17.360	0.00	0.0	0.00	WAT
gtk ct1	soldatCT	38.0	11.265	1.43	0.0	1.60	GAS
sldic2	seldic2	1.0	2.864	39.57	0.0	7.00	F02
sldic34	seldic34	1.0	2.864	39.57	0.0	7.00	F02
ses ic3	seward3	2.0	0.603	5.84	0.0	6.50	F02
ses ic4	seward4	2.0	0.603	5.84	0.0	6.50	F02
ses ic5	seward5	3.0	0.603	5.84	0.0	6.50	F02
ses ic6	seward6	3.0	0.603	5.84	0.0	6.50	F02
new ct1	new ct1	40.0	8.760	0.58	0.0	1.60	GAS
new ct2	new ct2	40.0	8.760	0.58	0.0	1.60	GAS
new ct3	new ct3	25.0	8.760	0.58	0.0	1.60	GAS

File Name: b:KENAIRSA.SPM  
 Description :Kenai Supply Model

Unit ID	Unit Name	Size (MW)	Maintenance Days											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
bernct2	bernice2	18.0					8						25	
bernct3	bernice3	27.0						20	17					
bernct4	bernice4	27.0				14			14	18				
bradley	bradleyH	90.0												
cooper1	cooper H	18.0												
gtk ct1	soldatCT	38.0				10	10	12						
sldic2	seldic2	1.0									8	7		
sldic34	seldic34	1.0			8	7								
ses ic3	seward3	2.0		1	3									
ses ic4	seward4	2.0		1					3					
ses ic5	seward5	3.0				1					3			
ses ic6	seward6	3.0			1				3					
new ct1	new ct1	40.0				10	10	12						
new ct2	new ct2	40.0					12	10	10					
new ct3	new ct3	25.0				12			10	10				

File Name: c:ANCHRSA .SPM

Description :Anchorage Supply Model

Unit ID	Unit Name	Size (MW)	Number of Units	Flue gas Scrubber (yes/no)	Super-Critical (yes/no)	Date Installed	Book Life (Yr)	ACRS Type 1-3
EKLU	EklutnaH	30	1	no	no	1955	99	1
AML PCT1	Anc CT 1	16	1	no	no	1962	25	1
AML PCT2	Anc CT 2	16	1	no	no	1964	25	1
AML PCT3	Anc CT 3	20	1	no	no	1968	23	1
AML PCT4	Anc CT 4	34	1	no	no	1972	20	1
AM CC56	Anc CC56	48	1	no	no	1979	20	1
AM CC76	Anc CC76	109	1	no	no	1979	20	1
AML PCT8	Anc CT 8	87	1	no	no	1984	25	1
AML PCT9	Anc CT 9	87	1	no	no	2050	38	1
Bel CT1	BelugCT1	16	1	no	no	1968	26	1
Bel CT2	BelugCT2	16	1	no	no	1968	26	1
Bel CT3	BelugCT3	50	1	no	no	1972	27	1
Bel CT4	BelugCT4	10	1	no	no	1976	20	1
Bel CT5	BelugCT5	67	1	no	no	1975	24	1
BelCC68	BelgCC68	101	1	no	no	1976	31	1
belgC78	BelgCC78	101	1	no	no	1976	31	1
Int CT1	IntnCT1	14	1	no	no	1965	31	1
Int CT2	IntnCT2	14	1	no	no	1968	28	1
Int CT3	IntnCT3	20	1	no	no	1970	26	1
NewCC76	New CC76	180	1	no	no	1999	25	1
NewBCT3	NewBCT 3	50	1	no	no	1994	27	1
NewBCT4	NewBCT 4	50	1	no	no	1996	27	1
NewBCT5	NewBCT 5	67	1	no	no	1999	25	1
NewBCT6	NewBCT 6	50	1	no	no	1999	25	1
NewBCC6	NewBCC68	101	1	no	no	2007	31	1
NewBCC7	NewBCC78	101	1	no	no	2007	31	1
NewCT10	New CT10	50	1	no	no	2007	25	1
NewCT11	New CT11	87	1	no	no	2009	25	1
NewCT12	New CT12	50	1	no	no	2015	25	1
NewCT13	New CT13	50	1	no	no	2018	25	1
NwBCT14	NewBCT14	50	1	no	no	2002	25	1
NwBCT15	NewBCT15	50	1	no	no	2011	25	1

File Name: c:ANCHRSA .SPM  
 Description :Anchorage Supply Model

Unit ID	Unit Name	Size (MW)	Unsche. Outage Rate(%)	Daily Unavail. (%)
EKLU	EklutnaH	30	0.0	0.0
AML PCT1	Anc CT 1	16	2.0	0.0
AML PCT2	Anc CT 2	16	2.0	0.0
AML PCT3	Anc CT 3	20	2.0	0.0
AML PCT4	Anc CT 4	34	2.0	0.0
AM CC56	Anc CC56	48	2.0	0.0
AM CC76	Anc CC76	109	2.0	0.0
AML PCT8	Anc CT 8	87	2.0	0.0
AML PCT9	Anc CT 9	87	2.0	0.0
Bel CT1	BelugCT1	16	6.0	0.0
Bel CT2	BelugCT2	16	6.0	0.0
Bel CT3	BelugCT3	50	6.0	0.0
Bel CT4	BelugCT4	10	6.0	0.0
Bel CT5	BelugCT5	67	6.0	0.0
BelCC68	BelgCC68	101	8.0	0.0
belgCT78	BelgCC78	101	8.0	0.0
Int CT1	IntnCT1	14	6.0	0.0
Int CT2	IntnCT2	14	6.0	0.0
Int CT3	IntnCT3	20	6.0	0.0
NewCC76	New CC76	180	8.0	0.0
NewBCT3	NewBCT 3	50	8.0	0.0
NewBCT4	NewBCT 4	50	8.0	0.0
NewBCT5	NewBCT 5	67	8.0	0.0
NewBCT6	NewBCT 6	50	8.0	0.0
NewBCC6	NewBCC68	101	8.0	0.0
NewBCC7	NewBCC78	101	8.0	0.0
NewCT10	New CT10	50	8.0	0.0
NewCT11	New CT11	87	6.0	0.0
NewCT12	New CT12	50	8.0	0.0
NewCT13	New CT13	50	8.0	0.0
NwBCT14	NewBCT14	50	8.0	0.0
NwBCT15	NewBCT15	50	8.0	0.0

File Name: c:ANCHRSA GPM  
 Description :Anchorage Supply Model

Unit ID	Unit Name	Size (MW)	HEAT RATES (BTU/KWH AT % OUTPJT)				AVERAGE
			100%	75%	50%	25%	
EKLU	EklutnaH	30					
AML PCT1	Anc CT 1	16	15329	16743	20193		16743
AML PCT2	Anc CT 2	16	15329	16743	20193		16743
AML PCT3	Anc CT 3	20	14089	15439	18147		15439
AML PCT4	Anc CT 4	34	13901	14910	18475		14910
AM CC56	Anc CC56	48	11209	12039			12039
AM CC76	Anc CC76	109	9017	9367			9367
AML PCT8	Anc CT 8	87	11810	12095	14029		12095
AML PCT9	Anc CT 9	87	11810	12095	14029		12095
Bel CT1	BelugCT1	16	15314	15602	17119		15602
Bel CT2	BelugCT2	16	15314	15602	17119		15602
Bel CT3	BelugCT3	50	11344	11723	13136		11723
Bel CT4	BelugCT4	10	17500	18284	20110		18284
Bel CT5	BelugCT5	67	12963	13448	15012		13448
BelCC68	BelgCC68	101	9391	9831	10981		9831
belgC78	BelgCC78	101	9391	9831			9391
Int CT1	IntnCT1	14	19371	19894	21716		19894
Int CT2	IntnCT2	14	19371	19894	21716		19894
Int CT3	IntnCT3	20	16627	18248	21679		19894
NewCC76	New CC76	180	9391	9831			9831
NewBCT3	NewBCT 3	50					12095
NewBCT4	NewBCT 4	50					12095
NewBCT5	NewBCT 5	67					12095
NewBCT6	NewBCT 6	50					12095
NewBCC6	NewBCC68	101	9391	9831			9391
NewBCC7	NewBCC78	101	9391	9831			9391
NewCT10	New CT10	50					12095
NewCT11	New CT11	87					12095
NewCT12	New CT12	50					12095
NewCT13	New CT13	50					12095
NwBCT14	NewBCT14	50					12095
NwBCT15	NewBCT15	50					12095

File Name: c:ANCHRSA .SPM

Description :Anchorage Supply Model

Unit ID	Unit Name	Size (MW)	Maximum Capacity Factor											
			Jan (%)	Feb (%)	Mar (%)	Apr (%)	May (%)	Jun (%)	Jul (%)	Aug (%)	Sep (%)	Oct (%)	Nov (%)	Dec (%)
EKLIJ	EklutnaH	30	63.9	54.7	54.7	45.7	54.7	54.7	59.4	59.4	63.9	63.9	63.9	
AMLPC1	Anc CT 1	16												
AMLPC2	Anc CT 2	16												
AMLPC3	Anc CT 3	20												
AMLPC4	Anc CT 4	34												
AM CC56	Anc CC56	48												
AM CC76	Anc CC76	109												
AMLPC8	Anc CT 8	87												
AMLPC9	Anc CT 9	87												
Bel CT1	BelugCT1	16												
Bel CT2	BelugCT2	16												
Bel CT3	BelugCT3	50												
Bel CT4	BelugCT4	10												
Bel CT5	BelugCT5	67												
BelCC68	BelgCC68	101												
belgC78	BelgCC78	101												
Int CT1	IntnCT1	14												
Int CT2	IntnCT2	14												
Int CT3	IntnCT3	20												
NewCC76	New CC76	180												
NewBCT3	NewBCT 3	50												
NewBCT4	NewBCT 4	50												
NewBCT5	NewBCT 5	67												
NewBCT6	NewBCT 6	50												
NewBCC6	NewBCC68	101												
NewBCC7	NewBCC78	101												
NewCT10	New CT10	50												
NewCT11	New CT11	87												
NewCT12	New CT12	50												
NewCT13	New CT13	50												
NWBCT14	NewBCT14	50												
NWBCT15	NewBCT15	50												

File Name: c:ANCHRSA .SPM  
 Description :Anchorage Supply Model

Unit ID	Unit Name	Size (MW)	Fixed O&M Cost (\$/KW-YR)	Variable O&M Cost (\$/MWH)	Cost. of Consumables (\$/MWH)	Fuel Cost (\$/MBTU)	Fuel Type
EKLU	EklutnaH	30	99.484				WAT
AMLPT1	Anc CT 1	16	10.320	5.79	0.0	2.20	GAS
AMLPT2	Anc CT 2	16	10.320	5.79	0.0	2.20	GAS
AMLPT3	Anc CT 3	20	10.320	5.79	0.0	2.20	GAS
AMLPT4	Anc CT 4	34	10.320	5.79	0.0	2.20	GAS
AM CC56	Anc CC56	48	13.044	5.79	0.0	2.20	GAS
AM CC76	Anc CC76	109	13.044	5.79	0.0	2.20	GAS
AMLPT8	Anc CT 8	87	13.044	5.79	0.0	2.20	GAS
AMLPT9	Anc CT 9	87	13.044	5.79	0.0	2.20	GAS
Bel CT1	BelugCT1	16	11.436	1.43	0.0	1.63	GAS
Bel CT2	BelugCT2	16	11.436	1.43	0.0	1.63	GAS
Bel CT3	BelugCT3	50	11.436	1.43	0.0	1.63	GAS
Bel CT4	BelugCT4	10	11.436	1.43	0.0	1.63	GAS
Bel CT5	BelugCT5	67	11.436	1.43	0.0	1.63	GAS
BelCC68	BelgCC68	101	11.436	1.43	0.0	1.63	GAS
belgC78	BelgCC78	101	11.436	1.43	0.0	1.63	GAS
Int CT1	IntnCT1	14	19.777	13.74	0.0	2.20	GAS
Int CT2	IntnCT2	14	19.777	13.74	0.0	2.20	GAS
Int CT3	IntnCT3	20	19.777	13.74	0.0	2.20	GAS
NewCC76	New CC76	180	13.260	0.58	0.0	2.20	GAS
NewBCT3	NewBCT 3	50	8.760	0.58	0.0	1.63	GAS
NewBCT4	NewBCT 4	50	8.760	0.58	0.0	1.63	GAS
NewBCT5	NewBCT 5	67	8.760	0.58	0.0	1.63	GAS
NewBCT6	NewBCT 6	50	8.760	0.58	0.0	1.63	GAS
NewBCC6	NewBCC6	101	13.260	0.66	0.0	1.63	GAS
NewBCC7	NewBCC7	101	13.260	0.66	0.0	1.63	GAS
NewCT10	New CT10	50	8.760	0.58	0.0	2.20	GAS
NewCT11	New CT11	87	8.760	0.58	0.0	2.20	GAS
NewCT12	New CT12	50	8.760	0.58	0.0	2.20	GAS
NewCT13	New CT13	50	8.760	0.58	0.0	2.20	GAS
NwBCT14	NewBCT14	50	8.760	0.58	0.0	1.60	GAS
NwBCT15	NewBCT15	50	8.760	0.58	0.0	1.60	GAS

File Name: c:\ANCHRSA .SPM  
 Description :Anchorage Supply Model

Unit ID	Unit Name	Size (MW)	Maintenance Days														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
EKLU	EklutnaH	30															
AML PCT1	Anc CT 1	16	10	10							23						
AML PCT2	Anc CT 2	16	6	6					24								
AML PCT3	Anc CT 3	20							20	25							
AML PCT4	Anc CT 4	34	10						20	19							
AM CC56	Anc CC56	48	5	5	5	5	5	5	5	5	5						
AM CC76	Anc CC76	109				5	5	5	5	5	5	5	5	5	5	5	5
AML PCT8	Anc CT 8	87			15	15	15	15	9								
AML PCT9	Anc CT 9	87							15	15	15	9					
Bel CT1	BelugCT1	16					14	14	11								
Bel CT2	BelugCT2	16					16	8	8								
Bel CT3	BelugCT3	50			12	12	12	10									
Bel CT4	BelugCT4	10			8	8	8	8	8	8							
Bel CT5	BelugCT5	67		9			9	9	9	9	11						
BelCC68	BelgCC68	101							13	13	13	13					
belgC78	BelgCC78	101					13		13		13				13		
Int CT1	IntnCT1	14								14	14						
Int CT2	IntnCT2	14									14	14					
Int CT3	IntnCT3	20								14	14	14	14	14			
NewCC76	New CC76	180			5	5	5	5	5	5	5	5	5	5	5	5	5
NewBCT3	NewBCT 3	50			15	15	15	15	9								
NewBCT4	NewBCT 4	50			15	15	15	15	9								
NewBCT5	NewBCT 5	67							9	15	15	15	15	15	15	15	15
NewBCT6	NewBCT 6	50							9	15	15	15	15	15	15	15	15
NewBCC6	NewBCC68	101							13	13	13	13	13	13	13	13	13
NewBCC7	NewBCC78	101			13	13	13	13	13								
NewCT10	New CT10	50			15	15	15	15	9								
NewCT11	New CT11	87			15	15	15	15	9								
NewCT12	New CT12	50			15	15	15	15	9								
NewCT13	New CT13	50							9	15	15	15	15	15	15	15	15
NWBCT14	NewBCT14	50							9	15	15	15	15	15	15	15	15
NWBCT15	NewBCT15	50							9	15	15	15	15	15	15	15	15

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File Name: c:FAIRRSA .SPM  
 Description :Fairbanks Supply Model

Unit ID	Unit Name	Size (MW)	Number of Units	Flue gas Scrubber (yes/no)	Super-Critical (yes/no)	Date Installed	Book Life (Yr)	ACRS Type 1-3
Chenst5	ChenaST5	20	1	no	no	1970	35	1
Chenst6	ChenaST6	26	1	no	no	1976	30	1
Fmusic1	Fmusic 1	3	1	no	no	1967	25	1
Fmusic2	Fmusic 2	3	1	no	no	1967	25	1
Fmusic3	Fmusic 3	3	1	no	no	1967	25	1
HealSt1	HealyST1	25	1	no	no	1967	35	1
HealIC2	HealyIC2	3	1	no	no	1967	30	1
Nopoct1	NoPolCT1	61	1	no	no	1976	30	1
Nopoct2	NoPolCT2	61	1	no	no	1977	30	1
Zen ct1	Zender 1	18	1	no	no	1971	30	1
Zen ct2	Zender 2	18	1	no	no	1972	30	1
DslIC1	DslIC 1	2	1	no	no	1961	30	1
DslIC2	DslIC 2	2	1	no	no	1961	30	1
DslIC3	DslIC 3	2	1	no	no	1961	30	1
DslIC5	DslIC 5	3	1	no	no	1970	30	1
DslIC6	DslIC 6	3	1	no	no	1970	30	1
UAFIC7	UAFIC 7	3	1	no	no	1970	26	1
UAFIC8	UAFIC 8	3	1	no	no	1970	26	1
NewHeal	NewHeST1	25	1	no	no	2002	35	1
NewFctA	NEWFACT A	25	1	no	no	1992	30	1
NewFct8	NEWFACT 8	25	1	no	no	2002	30	1
NewFct1	NEWFACT 1	25	1	no	no	1996	30	1
NewFct2	NEWFACT 2	25	1	no	no	1999	30	1
NewFct3	NEWFACT 3	25	1	no	no	2001	30	1
NewFct4	NEWFACT 4	50	1	no	no	2005	30	1
NewFct5	NEWFACT 5	70	1	no	no	2006	30	1
NewFct6	NEWFACT 6	70	1	no	no	2007	30	1
NewFct7	NEWFACT 7	30	1	no	no	2010	30	1
NewFct8	NEWFACT 8	30	1	no	no	2016	30	1

File Name: c:FAIRRSA .SPM  
 Description :Fairbanks Supply Model

Unit ID	Unit Name	Size (MW)	Unsche. Outage Rate(%)	Daily Unavail. (%)
Chenst5	ChenaST5	20	6.0	0.0
Chenst6	ChenaST6	26	8.0	0.0
Fmusic1	Fmusic 1	3	5.0	0.0
Fmusic2	Fmusic 2	3	5.0	0.0
Fmusic3	Fmusic 3	3	5.0	0.0
HealSt1	HealyST1	25	1.8	0.0
HealIC2	HealyIC2	3	1.0	0.0
Nopoct1	NoPolCT1	61	1.0	0.0
Nopoct2	NoPolCT2	61	1.0	0.0
Zen ct1	Zender 1	18	1.0	0.0
Zen ct2	Zender 2	18	1.0	0.0
DslIC1	DslIC 1	2	5.0	0.0
DslIC2	DslIC 2	2	5.0	0.0
DslIC3	DslIC 3	2	5.0	0.0
DslIC5	DslIC 5	3	5.0	0.0
DslIC6	DslIC 6	3	5.0	0.0
UAFIC7	UAFIC 7	3	5.0	0.0
UAFIC8	UAFIC 8	3	5.0	0.0
NewHeal	NewHeST1	25	5.7	0.0
NewFctA	NEWFCT A	25	8.0	0.0
NewFctB	NEWFCT B	25	8.0	0.0
NewFct1	NEWFCT 1	25	8.0	0.0
NewFct2	NEWFCT 2	25	8.0	0.0
NewFct3	NEWFCT 3	25	8.0	0.0
NewFct4	NEWFCT 4	50	8.0	0.0
NewFct5	NEWFCT 5	70	8.0	0.0
NewFct6	NEWFCT 6	70	8.0	0.0
NewFct7	NEWFCT 7	30	8.0	0.0
NewFct8	NEWFCT 8	30	8.0	0.0

File Name: c:FAIRRSA SPM  
 Description :Fairbanks Supply Model

Unit ID	Unit Name	Size (MW)	HEAT RATES (BTU/KWH AT % OUTPUT)				AVERAGE
			100%	75%	50%	25%	
Chens15	ChenaST5	20	14236	14693	15613		14693
Chens16	ChenaST6	26	12733	13574	16652		13574
Fmusic1	Fmusic 1	3	12128	12425	13283		12425
Fmusic2	Fmusic 2	3	12128	12425	13283		12425
Fmusic3	Fmusic 3	3	12128	12425	13283		12425
HealSt1	HealyST1	25	12750	13012	13876		12753
HealIC2	HealyIC2	3	11210	11486	12285		11486
Nopoct1	NoPolCT1	61	9500	10781	12874		10781
Nopoct2	NoPolCT2	61	9500	10781	12874		10781
Zen ct1	Zender 1	18	14869	15218	16634		15218
Zen ct2	Zender 2	18	14869	15218	16634		15218
DslIC1	DslIC 1	2	11210	11486	12284		11486
DslIC2	DslIC 2	2	11210	11486	12284		11486
DslIC3	DslIC 3	2	11210	11486	12284		11486
DslIC5	DslIC 5	3	11210	11486	12284		11486
DslIC6	DslIC 6	3	11210	11486	12284		11486
UAFIC7	UAFIC 7	3	11210	11486	12284		11486
UAFIC8	UAFIC 8	3	11210	11486	12284		11486
NewHea1	NewHeSTi	25	9750	9950	10611		9950
NewFctA	NEWFCT A	25					12095
NewFct8	NEWFCT 8	25					12095
NewFct1	NEWFCT 1	25					12095
NewFct2	NEWFCT 2	25					12095
NewFct3	NEWFCT 3	25					12095
NewFct4	NEWFCT 4	50					12095
NewFct5	NEWFCT 5	70					12095
NewFct6	NEWFCT 6	70					12095
NewFct7	NEWFCT 7	30					12095
NewFct8	NEWFCT 8	30					12095

File Name: c:FAIRRSA .SPM  
 Description :Fairbanks Supply Model

Unit ID	Unit Name	Size (MW)	Fixed O&M Cost (\$/KW-YR)	Variable O&M Cost (\$/MWH)	Cost of Consumables (\$/MWH)	Fuel Cost (\$/MBTU)	Fuel Type
Chenst5	ChenaST5	20	75.030	0.65	0.0	2.50	CO1
Chenst6	ChenaST6	26	8.933	0.59	0.0	3.40	F06
Fmusic1	Fmusic 1	3	0.887	23.27	0.0	5.00	F02
Fmusic2	Fmusic 2	3	0.887	23.27	0.0	5.00	F02
Fmusic3	Fmusic 3	3	0.887	23.27	0.0	5.00	F02
HealSt1	HealyST1	25	71.349	4.19	0.0	1.30	CO2
HealIC2	HealyIC2	3	0.602	5.84	0.0	5.00	F02
Nopoct1	NoPolCT1	61	7.568	1.46	0.0	3.40	F06
Nopoct2	NoPolCT2	61	7.568	1.46	0.0	3.40	F06
Zen ct1	Zender 1	18	8.963	0.60	0.0	3.40	F06
Zen ct2	Zender 2	18	8.963	0.60	0.0	3.40	F06
DslIC1	DslIC 1	2	0.602	5.84	0.0	5.00	F02
DslIC2	DslIC 2	2	0.602	5.84	0.0	5.00	F02
DslIC3	DslIC 3	2	0.602	5.84	0.0	5.00	F02
DslIC5	DslIC 5	3	0.602	5.84	0.0	5.00	F02
DslIC6	DslIC 6	3	0.602	5.84	0.0	5.00	F02
UAFIC7	UAFIC 7	3	0.602	5.84	0.0	5.00	F02
UAFIC8	UAFIC 8	3	0.602	5.84	0.0	5.00	F02
NewHeal	NewHeST1	25	61.429	4.30	0.0	1.30	CO2
NewFctA	NEWFACT A	25	8.760	0.58	0.0	3.40	F06
NewFctB	NEWFACT B	25	8.760	0.58	0.0	3.40	F06
NewFct1	NEWFACT 1	25	8.760	0.58	0.0	3.40	F06
NewFct2	NEWFACT 2	25	8.760	0.58	0.0	3.40	F06
NewFct3	NEWFACT 3	25	8.760	0.58	0.0	3.40	F06
NewFct4	NEWFACT 4	50	8.760	0.58	0.0	3.40	F06
NewFct5	NEWFACT 5	70	8.760	0.58	0.0	3.40	F06
NewFct6	NEWFACT 6	70	8.760	0.58	0.0	3.40	F06
NewFct7	NEWFACT 7	30	8.760	0.58	0.0	3.40	F06
NewFct8	NEWFACT 8	30	8.760	0.58	0.0	3.40	F06

File Name: c:\FAIRRSA 6PM

Description :Fairbanks Supply Model

Unit ID	Unit Name	Size (MW)	Maintenance Days													
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Chenst5	ChenaST5	20				10						12				
Chenst6	ChenaST6	20			10						12					
Fmusic1	Fmusic 1	3				3								4		
Fmusic2	Fmusic 2	3						3				4				
Fmusic3	Fmusic 3	3			3						4					
HealSt1	HealyST1	25										9	9	8		
HealIC2	HealyIC2	3				10	10	10	10	10	10	10	10	10		
Nopoct1	NoPolCT1	61						20	20	15						
Nopoct2	NoPolCT2	61										20	20	15		
Zen ct1	Zender 1	18				20	20	15								
Zen ct2	Zender 2	18				20	20	15								
DslIC1	DslIC 1	2										25	25	23		
DslIC2	DslIC 2	2										25	25	23		
DslIC3	DslIC 3	2						25	25	23						
DslIC5	DslIC 5	3						25	25	23						
DslIC6	DslIC 6	3			25	25	23									
UAFIC7	UAFIC 7	3						25	25	23						
UAFIC8	UAFIC 8	3										25	25	23		
NewHeal	NewHeST1	25										9	9	8		
NewFctA	NEWFCT A	25			20	20	15									
NewFctB	NEWFCT B	25						20	20	15						
NewFct1	NEWFCT 1	25			20	20	15									
NewFct2	NEWFCT 2	25				20	20	15								
NewFct3	NEWFCT 3	25					15	20	20							
NewFct4	NEWFCT 4	50						20	20	15						
NewFct5	NEWFCT 5	70							20	20	15					
NewFct6	NEWFCT 6	70								20	20	15				
NewFct7	NEWFCT 7	30			20	20	15									
NewFct8	NEWFCT 8	30				20	20	15								

### 8.3. Load Data Sets

TABLE 8.3.1 MONTHLY DISTRIBUTION  
OF PEAK POWER DEMAND

(Page 1 of 2)

Anchorage - Cook Inlet Area				
	Average 1976-1982	1982	1983	Average 1982-1983
	(%)	(%)	(%)	(%)
January	88.5	100.0	100.0	100.0
February	87.4	92.5	88.0	90.2
March	78.4	82.1	80.5	81.3
April	69.4	76.5	72.8	74.6
May	60.9	63.5	65.3	64.4
June	58.5	60.5	62.5	61.5
July	58.5	61.4	62.1	61.8
August	59.2	62.9	64.4	63.6
September	66.8	72.9	72.6	72.8
October	80.1	90.6	81.0	85.8
November	88.0	95.8	84.7	90.2
December	99.2	93.7	93.6	93.6

Fairbanks - Tanana Valley Area				
	Average 1976-1982	1982	1983	Average 1982-1983
	(%)	(%)	(%)	(%)
January	92.7	100.0	100.0	100.0
February	91.8	97.2	86.6	91.9
March	79.1	84.5	79.7	85.6
April	68.0	76.3	67.9	72.1
May	60.2	69.4	67.1	68.2
June	56.9	68.4	62.9	65.6
July	57.1	64.6	63.4	64.0
August	58.6	66.0	67.6	66.8
September	64.1	69.5	71.3	70.4
October	75.4	84.6	79.8	82.2
November	84.2	99.4	82.6	91.0
December	95.0	94.9	97.2	96.0

Total Railbelt Area				
	Average 1976-1982	1982	1983	Average 1982-1983
	(%)	(%)	(%)	(%)
January	89.8	100.0	100.0	100.0
February	87.7	92.8	87.6	90.2
March	78.9	83.0	80.6	81.8
April	69.2	77.3	72.2	74.8
May	60.9	65.1	65.1	65.1
June	58.3	61.2	62.1	61.6
July	57.9	62.4	62.1	62.2
August	59.8	63.0	64.4	63.7
September	66.4	72.7	72.0	72.4
October	79.5	89.8	81.0	85.4
November	87.7	96.3	84.3	90.3
December	98.9	94.6	93.5	94.0

TABLE 8.3.1) (Page 2 of 2)

Anchorage - Cook Inlet Area				
	Average 1976-1982	1982	1983	Average 1982-1983
	(%)	(%)	(%)	(%)
January	10.0	10.7	10.4	10.6
February	8.9	9.0	8.7	8.8
March	8.9	8.9	8.9	8.9
April	7.8	7.9	7.8	7.8
May	7.2	7.1	7.3	7.2
June	6.6	6.5	6.7	6.6
July	6.7	6.8	6.9	6.8
August	6.9	6.9	7.2	7.0
September	7.2	7.2	7.6	7.4
October	8.7	9.0	8.7	8.8
November	9.8	9.6	9.3	9.4
December	11.2	10.2	10.4	10.3

Fairbanks - Tanana Valley Area				
	Average 1976-1982	1982	1983	Average 1982-1983
	(%)	(%)	(%)	(%)
January	10.8	11.0	10.7	10.8
February	9.7	9.2	8.8	9.0
March	9.2	8.9	9.0	9.0
April	7.7	7.8	7.5	7.6
May	6.9	7.3	7.2	7.2
June	6.3	6.6	6.7	6.6
July	6.5	6.8	6.8	6.8
August	6.6	6.9	7.2	7.0
September	7.1	7.2	7.7	7.4
October	8.5	8.8	8.5	8.6
November	9.4	9.4	9.1	9.2
December	11.3	10.2	10.6	10.4

Total Railbelt Area				
	Average 1976-1982	1982	1983	Average 1982-1983
	(%)	(%)	(%)	(%)
January	10.2	10.7	10.5	10.6
February	9.1	9.0	8.8	8.9
March	9.0	8.9	8.9	8.9
April	7.8	7.9	7.8	7.8
May	7.1	7.2	7.2	7.2
June	6.5	6.5	6.7	6.6
July	6.7	6.8	6.9	6.8
August	6.8	6.9	7.2	7.0
September	7.2	7.2	7.6	7.4
October	8.7	9.0	8.7	8.8
November	9.7	9.6	9.2	9.4
December	11.2	10.2	10.4	10.3

Source: Data for 1976-1982 are taken from Alaska Electric Power Statistics 1960-1983, Alaska Power Administration (1984). Data for 1982 and 1983 are based on Applicant's evaluation of hourly load data provided by the Railbelt Utilities.

Table 8.3.2

TOTAL RAILBELT  
ENERGY REQUIREMENTS

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
ANCHORAGE MUNICIPAL LIGHT AND POWER	859.1	884.6	885.7	881.7	882.1	884.3	872.6	913.4	934.5	945.3	954.8	948.0	987.0	1,041.6	1,037.6	1,044.1
CHUBACH ELECTRIC ASSOCIATION (RETAIL)	933.7	976.9	978.2	988.3	1,000.1	996.0	1,016.7	1,046.5	1,046.6	998.3	1,009.9	1,020.4	1,033.3	1,009.7	1,048.8	1,091.2
HOMER ELECTRIC ASSOCIATION	386.7	391.7	391.7	396.7	376.5	417.2	427.2	432.2	412.2	401.6	412.2	417.2	417.2	422.2	427.2	432.2
MATANUSKA ELECTRIC ASSOCIATION	478.1	475.2	474.0	476.5	425.9	435.7	433.7	442.8	470.3	471.3	472.1	479.5	483.1	496.2	510.4	527.6
CITY OF BEARPAW	34.9	34.9	41.2	43.4	45.6	46.0	46.7	47.7	48.8	49.2	49.5	49.9	50.3	50.9	51.5	52.2
SYSTEM LOSSES	135.7	161.8	162.1	163.7	163.4	164.3	167.5	172.0	172.3	165.3	167.3	169.1	171.0	173.9	177.1	180.9
<b>TOTAL (CEA)</b>	<b>1999.2</b>	<b>2046.5</b>	<b>2047.2</b>	<b>2046.7</b>	<b>2011.5</b>	<b>2054.1</b>	<b>2091.7</b>	<b>2141.2</b>	<b>2130.2</b>	<b>2085.7</b>	<b>2110.9</b>	<b>2136.1</b>	<b>2154.9</b>	<b>2192.0</b>	<b>2234.9</b>	<b>2284.0</b>
FAIRBANKS MUNICIPAL UTILITY SYSTEM	166.2	172.9	174.6	176.3	179.9	185.3	189.0	192.8	196.6	200.5	204.5	208.6	212.8	217.0	221.4	225.8
GOLDEN VALLEY ELECTRIC ASSOCIATION	301.5	321.0	341.2	362.2	377.3	392.7	408.6	424.9	441.7	458.9	476.6	494.6	513.2	532.3	552.0	572.1
HOMER ELECTRIC ASSOCIATION	420.0	425.0	425.0	430.0	454.3	495.0	505.0	510.0	490.0	479.4	490.0	495.0	495.0	500.0	505.0	510.0
CHUBACH ELECTRIC AREA	386.7	391.7	391.7	396.7	376.5	417.2	427.2	432.2	412.2	401.6	412.2	417.2	417.2	422.2	427.2	432.2
NEBAT	33.3	33.3	33.3	33.3	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8	77.8
MATANUSKA ELECTRIC AREA (TOTAL)	478.1	475.2	474.0	474.5	479.2	486.0	487.0	496.1	523.6	524.6	525.4	532.0	536.4	549.5	563.7	580.9
CHUBACH ELECTRIC AREA	478.1	475.2	474.0	474.5	425.9	432.7	433.7	442.8	470.3	471.3	472.1	479.5	483.1	496.2	510.4	527.6
NEBAT (BRADLEY LAKE)	0.0	0.0	0.0	0.0	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3	53.3
CITY OF BEARPAW	34.9	34.9	41.2	43.4	45.6	46.0	46.7	47.7	48.8	49.2	49.5	49.9	50.3	50.9	51.5	52.2
<b>TOTAL</b>	<b>3,539.9</b>	<b>3,652.3</b>	<b>3,642.0</b>	<b>3,720.2</b>	<b>3,781.9</b>	<b>3,851.6</b>	<b>3,913.0</b>	<b>4,003.4</b>	<b>4,054.1</b>	<b>4,021.5</b>	<b>4,077.9</b>	<b>4,138.5</b>	<b>4,199.0</b>	<b>4,284.9</b>	<b>4,377.0</b>	<b>4,477.2</b>
<b>CAPACITY REQUIREMENTS</b>																
ANCHORAGE MUNICIPAL LIGHT AND POWER	164.0	166.7	166.9	166.2	166.3	167.1	168.2	172.1	176.1	178.1	179.9	182.4	185.9	190.5	195.4	200.2
CHUBACH ELECTRIC ASSOCIATION	191.3	198.4	197.0	197.4	198.1	195.6	198.0	202.2	200.6	191.3	193.5	195.6	198.0	201.2	204.8	209.1
FAIRBANKS MUNICIPAL UTILITY SYSTEM	29.3	30.0	30.6	31.2	32.1	33.4	34.4	35.4	36.5	37.6	38.7	39.9	41.1	42.3	43.6	44.9
GOLDEN VALLEY ELECTRIC ASSOCIATION	85.8	92.3	99.4	107.0	109.8	112.8	115.8	118.9	122.1	125.4	128.7	132.2	135.7	139.3	143.1	146.9
HOMER ELECTRIC ASSOCIATION	79.0	81.0	81.5	84.0	87.0	95.0	96.0	97.0	93.0	92.0	93.0	94.0	95.0	96.0	97.0	97.5
MATANUSKA ELECTRIC ASSOCIATION	90.3	94.9	96.5	93.6	95.5	96.4	97.5	99.3	105.8	94.9	95.7	96.5	97.0	97.5	99.7	101.2
SWARD	7.0	7.0	10.0	11.0	12.4	12.5	12.7	13.3	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3
<b>TOTAL SYSTEM PEAK</b>	<b>646.7</b>	<b>670.3</b>	<b>681.9</b>	<b>690.4</b>	<b>701.2</b>	<b>712.8</b>	<b>722.6</b>	<b>738.2</b>	<b>747.7</b>	<b>733.0</b>	<b>743.3</b>	<b>754.4</b>	<b>766.7</b>	<b>780.9</b>	<b>797.7</b>	<b>814.1</b>
RESERVE REQUIREMENTS																
ANCHORAGE AREA	133.7	138.0	138.1	137.2	138.0	137.7	139.1	142.1	144.8	139.3	140.7	142.4	144.3	146.8	150.0	153.1
FAIRBANKS AREA	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9
KENAI PENINSULA	38.0	38.0	38.0	38.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0
<b>TOTAL RESERVE REQUIREMENT</b>	<b>232.6</b>	<b>236.9</b>	<b>237.0</b>	<b>236.1</b>	<b>249.9</b>	<b>249.6</b>	<b>251.0</b>	<b>254.0</b>	<b>256.7</b>	<b>251.2</b>	<b>252.6</b>	<b>254.3</b>	<b>256.2</b>	<b>263.7</b>	<b>286.9</b>	<b>290.1</b>
<b>TOTAL SYSTEM CAPACITY REQUIREMENT</b>	<b>879.3</b>	<b>907.2</b>	<b>918.9</b>	<b>926.4</b>	<b>951.1</b>	<b>962.4</b>	<b>973.6</b>	<b>992.2</b>	<b>1,004.3</b>	<b>984.1</b>	<b>995.9</b>	<b>1,008.7</b>	<b>1,022.8</b>	<b>1,044.6</b>	<b>1,084.6</b>	<b>1,104.1</b>

Note: Load Forecast Prepared by Railbelt Utilities  
Data obtained by APA, Dec 1986

Table 8.3.3

**Peak Demand, Energy and Load Factor Forecast  
1986-2020**

Year	Kenai			Anchorage			Fairbanks			Railbelt		
	Peak (mW)	Energy (mWh)	Load Factor	Peak (mW)	Energy (mWh)	Load Factor	Peak (mW)	Energy (mWh)	Load Factor	Peak (mW)	Energy (mWh)	Load Factor
1986	94.0	484.8	58.9%	445.6	2443.6	62.6%	145.1	772.2	60.7%	684.7	3700.6	61.7%
1987	96.0	495.2	58.9%	460.0	2522.5	62.6%	152.3	810.5	60.7%	708.3	3828.2	61.7%
1988	99.5	513.2	58.9%	460.4	2524.7	62.6%	160.0	851.4	60.7%	719.9	3889.4	61.7%
1989	103.0	531.3	58.9%	457.2	2507.2	62.6%	168.2	895.1	60.7%	728.4	3933.5	61.6%
1990	107.5	554.5	58.9%	459.9	2521.9	62.6%	171.9	914.8	60.7%	739.3	3991.1	61.6%
1991	115.6	596.3	58.9%	459.0	2517.0	62.6%	176.2	937.7	60.7%	750.8	4050.9	61.6%
1992	116.9	603.0	58.9%	463.6	2542.2	62.6%	180.2	958.9	60.7%	760.7	4104.1	61.6%
1993	118.7	612.2	58.9%	473.5	2596.5	62.6%	184.3	960.8	60.7%	776.5	4189.5	61.6%
1994	119.1	614.3	58.9%	484.4	2654.0	62.6%	188.6	1003.6	60.7%	792.1	4272.0	61.6%
1995	119.2	614.8	58.9%	486.1	2665.7	62.6%	193.0	1027.1	60.7%	798.3	4307.5	61.6%
1996	119.3	617.4	59.1%	487.9	2684.1	62.8%	197.4	1039.3	60.1%	804.6	4340.8	61.6%
1997	119.4	618.2	59.1%	490.4	2697.8	62.8%	202.1	1064.0	60.1%	811.9	4380.0	61.6%
1998	119.6	619.0	59.1%	493.9	2717.1	62.8%	206.8	1088.8	60.1%	820.3	4424.8	61.6%
1999	119.8	620.0	59.1%	498.5	2742.4	62.8%	211.6	1114.0	60.1%	829.9	4476.4	61.6%
2000	120.0	621.0	59.1%	506.0	2783.6	62.8%	216.7	1140.9	60.1%	842.7	4545.6	61.6%
2001	120.8	622.6	58.8%	515.1	2899.9	64.3%	221.8	1153.9	59.4%	857.7	4676.5	62.2%
2002	122.6	631.9	58.8%	522.8	2943.3	64.3%	224.7	1169.0	59.4%	870.1	4744.2	62.2%
2003	124.5	641.7	58.8%	530.7	2987.8	64.3%	227.6	1184.1	59.4%	882.8	4813.6	62.2%
2004	126.3	651.0	58.8%	538.6	3032.2	64.3%	230.6	1199.7	59.4%	895.5	4882.9	62.2%
2005	128.2	660.8	58.8%	546.7	3077.8	64.3%	233.6	1215.3	59.4%	908.5	4953.9	62.2%
2006	130.1	670.6	58.8%	554.9	3124.0	64.3%	236.6	1230.9	59.4%	921.6	5025.5	62.2%
2007	132.1	680.9	58.8%	563.2	3170.7	64.3%	239.7	1247.1	59.4%	935.0	5098.7	62.3%
2008	134.6	693.8	58.8%	571.7	3218.6	64.3%	242.9	1263.7	59.4%	949.2	5176.0	62.2%
2009	136.1	701.5	58.8%	580.3	3267.0	64.3%	246.1	1280.4	59.4%	962.5	5248.8	62.3%
2010	138.1	711.8	58.8%	589.0	3316.0	64.3%	249.3	1297.0	59.4%	976.4	5324.8	62.3%
2011	140.2	722.6	58.8%	597.8	3365.5	64.3%	252.6	1314.2	59.4%	990.6	5402.3	62.3%
2012	142.3	733.5	58.8%	606.8	3416.2	64.3%	255.9	1331.3	59.4%	1005.0	5481.0	62.3%
2013	144.4	744.3	58.8%	615.9	3467.4	64.3%	259.3	1349.0	59.4%	1019.6	5560.7	62.3%
2014	146.6	755.6	58.8%	625.1	3519.2	64.3%	262.8	1367.2	59.4%	1034.5	5642.1	62.3%
2015	148.8	767.0	58.8%	634.5	3572.1	64.3%	266.3	1385.4	59.4%	1049.6	5724.6	62.3%
2016	151.0	778.3	58.8%	644.0	3625.6	64.3%	269.8	1403.7	59.4%	1064.8	5807.6	62.3%
2017	153.3	790.2	58.8%	653.7	3680.2	64.3%	273.4	1422.4	59.4%	1080.4	5892.8	62.3%
2018	155.6	802.0	58.8%	663.5	3735.5	64.3%	277.0	1441.1	59.4%	1096.1	5978.7	62.3%
2019	157.9	813.9	58.8%	673.4	3791.3	64.3%	280.7	1460.4	59.4%	1112.0	6065.5	62.3%
2020	160.3	826.2	58.8%	683.5	3848.1	64.3%	284.5	1480.1	59.4%	1128.3	6154.5	62.3%

#### **8.4. Production Cost Results**

Tables 8.4.1 through 8.4.8 present the detail results for four year as were previously shown for the base case and the alternate case, namely, 1991, 1996, 2006, and 2015. Tables 8.4.1 to 8.4.4 show the annual production operation in the Fairbanks area with only the Anchorage to Kenai Peninsula intertie upgraded. The availability of energy to Fairbanks was determined from the alternate case but constrained by the 70 MW existing tie to Fairbanks. This case is summarized in Table 37 where the Anchorage/Kenai results are the same as the alternate case, but the Fairbanks results are revised to reflect the existing tie.

Tables 8.4.5 to 8.4.8 show the annual results for the same four years for Fairbanks with only the Anchorage to Fairbanks line upgraded. In this Case, the availability of energy to Fairbanks was determined from the base case but the intertie is upgraded to 350 MW. This case is summarized in Table 38 where the Anchorage and Kenai Peninsula results are the same as the base case, but the Fairbanks results are revised to reflect the new tie.





**Table 8.4.3 - 2006 Production Operation in Fairbanks  
Anchorage/Kenai Peninsula Upgraded Line only**

REPORT FOR YEAR 2006  
 RNM file:c:FAIRALL RNM-fairbanks native demand 1991-2020: +30 MW  
 Supply file:c:FBASE40L.SPM-fairbanks base case with anchor/kenai upgrade only  
 SYSTEM REPORT FOR YEAR 2006

ENERGY (GWH)		RELIABILITY		COSTS(M\$)	
Demand	1230.86	PK Load (MW)	236.60	Fix O&M	4.14
Unserve	3.84			Variable	14.75
Net Gen	1227.02			Unreserved	0.38
Storage	0.00			Fuel	20.25
Total Gen	1227.02	LOLP (Dys/Yr)	0.010	Total	39.52

Unit Name	Capacity Factor	Energy (GWH)	Cost in \$1,000		Total Cost	
			Variable	Fuel Cost	Total	\$/ (MWH)
NewHeST1	87.48	191.58	823.80	3024.61	3848.41	20.09
TIEPUR06	97.93	600.49	13402.27	0.00	13402.27	22.32
NoPolCT2	57.84	309.07	450.31	12044.04	12494.35	40.43
NEWFACT A	15.94	34.90	20.24	1435.12	1455.36	41.70
NEWFACT B	9.33	20.44	11.85	840.49	852.35	41.70
NEWFACT 1	6.20	13.58	7.87	558.29	566.17	41.70
NEWFACT 2	4.99	10.92	6.33	449.14	455.48	41.70
NEWFACT 3	4.34	9.51	5.51	390.99	396.50	41.70
NEWFACT 4	3.81	16.70	9.69	686.94	696.63	41.70
NEWFACT 5	3.23	19.84	11.51	815.75	827.26	41.70

**Table 8.4.4 - 2015 Production Operation in Fairbanks  
Anchorage/Kenai Peninsula Upgraded Line only**

RNM file:c:FAIRALL .RNM-fairbanks native demand 1991-2020: +30 MW  
 Supply file:c:FBASE40L.SPM-fairbanks base case with anchor/kenai upgrade only  
 SYSTEM REPORT FOR YEAR 2015

ENERGY (GWH)		RELIABILITY		COSTS(M\$)	
Demand	1385.37	PK Load (MW)	266.30	Fix O&M	4.56
Unserve	0.76			Variable	14.63
Net Gen.	1384.61			Unreserved	0.08
Storage	0.00			Fuel	27.11
Total Gen	1384.61	LOLP (Dys/Yr)	0.022	Total	46.37

Unit Name	Capacity Factor	Energy (GWH)	Cost in \$1,000		Total Cost	
			Variable	Fuel Cost	Total	\$/MWH
NewHeST1	87.48	191.59	823.83	3024.68	3848.50	20.09
TIEPUR15	99.04	607.32	13466.69	0.00	13466.69	22.17
NEWFCT A	54.71	119.82	69.49	4927.25	4996.74	41.70
NEWFCT B	46.01	100.76	58.44	4143.44	4201.88	41.70
NEWFCT 1	32.87	71.98	41.75	2960.07	3001.82	41.70
NEWFCT 2	26.12	57.21	33.18	2352.58	2385.76	41.70
NEWFCT 3	18.41	40.32	23.39	1658.15	1681.54	41.70
NEWFCT 4	12.50	54.76	31.76	2251.78	2283.54	41.70
NEWFCT 5	10.10	61.93	35.92	2546.80	2582.72	41.70
NEWFCT 6	9.13	55.95	32.45	2301.03	2333.48	41.70
NEWFCT 7	8.74	22.98	13.33	944.99	958.32	41.70









SNOW-

MACHINES



ALASKA STATE LEGISLATURE  
HOUSE OF REPRESENTATIVES  
RESEARCH AGENCY

P.O. Box Y, State Capitol  
Juneau, Alaska 99811-3100  
Mail Stop 3100  
(907) 465-3991

April 15, 1987

MEMORANDUM

TO: Representative Sam Cotten

ATTN: Ned Farquhar

FROM: Karla Hart *KH*  
Legislative Analyst

RE: Snowmobile Trail Systems in Other States  
Research Request 87.223

You initially asked what was required to make snowmobiles street and sidewalk legal. Snowmobiles are regulated under Title 5, Chapter 30 of the Alaska Statutes. The authority to regulate the use and operation of snowmobiles by ordinance is granted to local governments under AS 05.30.070. The Department of Public Safety explained that there is a basic incompatibility between operating conditions for wheeled vehicles, pedestrians, and ski and track vehicles such as snowmobiles. For snowmobiles to be street legal, they would have to comply with all of the regulations governing motor vehicles (Title 13, AAC Chapter 4), including the requirement that vehicles must be driven on rubber tires. I explained to you during our phone conversation that modifying snowmobiles to make them street and sidewalk legal was not considered practical by the enforcement officials with whom I spoke.

You then requested information on establishing a snowmobile trail system in Alaska. Recreational snow machine trails exist in many other states which have winter recreation possibilities. Six states were contacted for information: Minnesota, Montana, North Dakota, Vermont, Washington and Wyoming. Two important factors exist in all six states: volunteer involvement and user fees.

Minnesota

In Minnesota, snowmobile trails are administered through the Division of Trails and Waterways, Department of Natural Resources. The program is self-supporting, with funding coming from a triennial registration fee of \$18.00 (99 percent of the fee is dedicated) and a proportion (0.75 percent)

of the gas taxes collected.<sup>1</sup> The registration fee generates approximately one million dollars per year, and the snowmobile fund's portion of the gas tax is approximately \$2.2 million per year.

The money is used to develop, maintain and groom trails on existing state lands, and as grants-in-aid through local governments. Local governments in turn work with snowmobile clubs to develop, maintain and groom trails on land other than state land. The grants-in-aid program pays up to 65 percent of the cost of trail development and maintenance and 90 percent of grooming costs. The balance depends largely on volunteers; clubs are given credit of \$8.00 per hour for volunteer labor to meet their matching fund requirements (Attachment A).

The Minnesota Office of Tourism promotes the trail system through the publication of a 45-page guide to snowmobile trails. The Department of Natural Resources includes snowmobile opportunities in their guide to Minnesota state parks.

#### Montana

In Montana, snowmobile trails are administered by the Parks Division, Fish, Wildlife and Parks Department. Revenue is generated through a two dollar per year decal fee and 0.5 percent of the state gas taxes. Half of the money is dedicated to trails and half to enforcement.

Most of the maintenance conducted is under contract with local snowmobile clubs. The Bureau of Land Management and a Forest Service Ranger District each have a single maintenance contract. The Parks Division purchases necessary maintenance and grooming equipment and leases it to the clubs which have contracted to maintain the trails. For trail systems of less than 35 miles, the contracts are very low budget and rely heavily on volunteer labor. For larger systems, large ski hill type grooming equipment is used and paid operators, hired by the clubs, conduct the grooming.

#### North Dakota

The Parks and Recreation Department in North Dakota is responsible for administering the snowmobile trail network. Revenue is generated through an \$8.00 biennial fee. Of this, \$6.00 is a snowmobile trail tax and the funds are dedicated to pay for trail grooming and development. Administrative costs for the program are paid from the Parks Department budget. —

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<sup>1</sup>The proportion of the gas taxes dedicated to snowmobile funds is calculated through various user formulas in Minnesota, Montana, Washington and Wyoming.

A trail coordinator from each club is involved in planning the trail network at a state level. Clubs are paid to groom trails but all of the signing and labor involved in trail development is done by volunteers. The Parks Department publishes a booklet of North Dakota snowmobile laws and individual trail maps (Attachment B--sample map).

### Vermont

The Vermont snowmobile trail system is administered by the Parks Division, Forest, Parks and Recreation Department. Currently, a snowmobile registration fee of \$10 per year for residents and \$17 for nonresidents is charged. A bill under consideration would raise the fees by five dollars. Seventy-five percent of the fee is dedicated for the trail fund and is used for development and maintenance.

The Vermont Association of Snow Travelers (VAST) is an organization of over 160 snowmobile clubs that develop, construct and maintain the snowmobile system on both private and public lands under contract from the Parks Division. They rely heavily on volunteer labor, and donated money and equipment. The VAST prepares a booklet with maps of Vermont snowmobile trails which includes paid advertising. Attachment C provides detailed information on "How the Snowmobile Trails Program is Provided in the State of Vermont."

### Washington

The Washington snowmobile trails are administered by the State Parks and Recreation Commission. Dedicated funding is generated by a \$10 per year registration fee and 0.032 percent of the gas tax receipts. Local snowmobile clubs identify trail needs, prepare applications for funding, and provide input and evaluation on the trail system.

Most of the contracts for maintenance and development of trails go to counties or the U.S. Forest Service, only a few snowmobile clubs have contracts. The Parks Commission purchases grooming equipment which is made available to the contract holders. Clubs are relied on for volunteer trail construction and clearing. A snowmobile trail packet, funded in part by a grant from the Washington State Snowmobile Association, provides detailed maps, safety tips and other information.

Some of the dedicated funds are used for trailhead enforcement of snowmobile regulations by Parks Commission employees and through contracts with local law enforcement agencies. No on-trail enforcement is conducted.

## Wyoming

The Wyoming Recreation Commission administers the Wyoming snowmobile trail network. Funding is generated through a \$10 per year registration sticker--of which nine dollars goes to the trail system and one dollar to the vendor selling the sticker--and eight dollars in gasoline tax receipts for each registration sticker sold. When an individual purchases a registration sticker, the registration form allows the individual to designate the area of the state in which the fees collected from his or her registration should be spent. This gives each snowmobiler the opportunity to provide direct input on which trails receive funding.

In Wyoming, snowmobile clubs generally initiate the construction of a new trail by submitting a proposal to the Recreation Commission. The commission evaluates the proposals for feasibility, accessibility and safety and then establishes a priority system. The proposals which receive the highest priority are added to the registration form to allow snowmobilers the opportunity to designate funds for the area--allowing for future construction if enough funds are designated.

Currently trails are maintained and groomed through contracts with individual clubs, counties, and recreation boards, or by the commission itself. The commission is in the process of changing the program to one of grants-in-aid, under which funds will be distributed to counties which in turn will offer grants to clubs for trail maintenance and grooming. This will simplify the administration of the program for the commission and ultimately make the clubs more directly responsible for the trails.

Attachment D includes statutes relating to snowmobiles in Wyoming and details on the Wyoming Snowmobile Program budget.

Bob Renteria, with the Recreation Commission, was very excited about the possibility of Alaska establishing a recreational snowmobile system and had lots of advice to offer based on Wyoming's experiences over the years. He is very concerned with snowmobile safety, the need for snowmobile education programs--especially for young riders--and emphasized the most important feature of any snowmobile trail system should be excellent signing to reduce accidents. In addition, he suggested that snowmobiles should be required to have titles, the same as automobiles. He said that this would make it easier to obtain bank loans to purchase snowmobiles, that insurance companies prefer titled snowmobiles, and that theft is reduced if snowmobiles are titled. Mr. Renteria would be a good source of additional information for snowmobile clubs or administrators trying to establish a snowmobile system or regulations.

## International Snowmobile Congress

Most of the snowmobile administrators contacted mentioned the International Snowmobile Congress and suggested that, if Alaska is serious about establishing a trail system, they should send a representative to the congress

Representative Cotten  
April 15, 1987  
Page 5

in June. The International Snowmobile Congress includes the International Snowmobile Tourism Council, the International Association of Snowmobile Administrators, and the International Snowmobile Council Chapters (clubs). This is an annual opportunity for all interested parties to share information and ideas on all aspects of snowmobiling. The conference agenda is Attachment E.

\* \* \*

I hope this information is helpful. If you have additional questions, please call.

Attachments

**ATTACHMENT A**  
**Minnesota Snowmobile Trails Assistance Program**  
**Instruction Manual**

**MINNESOTA  
SNOWMOBILE  
TRAILS  
ASSISTANCE  
PROGRAM**

**INSTRUCTION  
MANUAL**

**MINNESOTA DEPARTMENT OF NATURAL RESOURCES**

**1985**

# DNR Regions



- DNR Regions .....
- Program Background .....
- Program Summary .....
- Trail Maintenance Application Form .....
- New Trail Project Procedure Project Proposal Form .....
- Request for Reimbursement Worksheet Form .....
- Grooming Log Sheet .....
- Allowable Charges .....
- Allowable Costs .....
- Sample County/Club Contract Agreement .....
- Trail Specifications and Sign Minnesota Liability Law .....
- Trail Use Regulation Laws .....
- Sample Trail Permit .....
- Sample Easement .....
- Sign Order Form .....
- Trail User Map Suggestion .....

Region I -- 2115 Birchmont Beach Road Northeast  
 Bemidji, Minnesota 56601  
 Regional Administrator:  
 Merlyn Wesloh 218/755-3955  
 Regional Trails & Waterways Coordinator:  
 Ardon Belcher 218/755-2255

Region IV -- Box 756 -- Highway 15 South  
 New Ulm, Minnesota 56073  
 Regional Administrator:  
 James Schneider 507/354-2196  
 Regional Trails & Waterways Coordinator:  
 Dave Wolff 507/354-2196

Region II -- 1201 East Highway 2  
 Grand Rapids, Minnesota 55744  
 Regional Administrator:  
 John Chell 218/327-1702  
 Regional Trails & Waterways Coordinator:  
 Les Ollila 218/327-1708

Region V -- 2300 Silver Creek Road Northeast  
 Rochester, Minnesota 55904  
 Regional Administrator:  
 William Morrissey 507/285-7418  
 Regional Trails & Waterways Coordinator:  
 Craig Mitchell 507/285-7176

Region III -- 424 Front Street -- Box 648  
 Brainerd, Minnesota 56401  
 Regional Administrator:  
 Robert Hance 218/828-2613  
 Regional Trails & Waterways Coordinator:  
 Tim Browning 218/828-2610

Region VI -- 1200 Warner Road  
 Saint Paul, Minnesota 55106  
 Regional Administrator:  
 Kathleen Wallace 612/296-3572  
 Regional Trails & Waterways Coordinator:  
 Delos Barber 612/296-3572

ons



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Highway 15 South  
 Minnesota 56073  
 Administrator:  
 Schneider 507/354-2196  
 Trails & Waterways Coordinator:  
 Hoff 507/354-2196

Creek Road Northeast  
 Minnesota 55904  
 Administrator:  
 Morrissey 507/285-7418  
 Trails & Waterways Coordinator:  
 Schell 507/285-7176

... Road  
 Minnesota 55106  
 Administrator:  
 Wallace 612/296-3572  
 Trails & Waterways Coordinator:  
 ...ber 612/296-3572

## PROGRAM BACKGROUND

In 1973 the Department of Natural Resources (DNR) was delegated the responsibility by the Minnesota Legislature to administer a cost-sharing program for the development and maintenance of snowmobile trails. Funding for the first year of the program was \$100,000.00. Seven counties and one city were approved for this funding and they developed 479 miles of snowmobile trail. Now, in 1985, over 6,800 miles of snowmobile trail have been developed.

The DNR has been delegated the responsibility of administering the Snowmobile Trails Assistance Program, also called Grants-In-Aid or GIA. The DNR sets program policies, accepts and approves applications, provides technical assistance, monitors and audits the program and enters into legal agreements with local units of government.

In the initial years of the program, development cost accounted for most of the program's funding. However, as in most programs of this nature, the majority of the funding is now being allocated to maintenance and grooming of these trail systems.

The program has been, and continues to be, involved in providing trail systems where there have not been any in the past. These trails provide connections between state trails, state park trails, state forest trails and local communities.

Trail development and maintenance costs are divided with the state paying 65 percent of these costs and the local agency contributing 35 percent. Winter grooming costs are divided with the state paying 90 percent and the local agency contributing 10 percent.

The Saint Paul office of the DNR sets program policy, program guidelines, budgets for program funding and provides for auditing of the program. The DNR regional personnel are responsible for approving and processing necessary program forms, providing technical assistance, monitoring trail development, maintenance and grooming and conducting informational meetings with local organizations. The DNR regional personnel are the main contact for local organizations.

### Local Units of Government

A local unit of government sponsor" and could be a county, town or city. The sponsor is accountable to the State for the program.

Trail user organizations generally work with the sponsor to physically develop and maintain the trail system. The following steps are the most common system development through the Assistance Program:

1. A trail user club or organization is formed for trails in their area.
2. The club or organization completes the program forms (refer to page 14). Sponsorship must be in writing by the sponsor.
3. The club and sponsor enter into a legal agreement (refer to page 14). The sponsor completes the forms and submits them to the DNR for approval.
4. Upon DNR approval of the agreement is sent to the sponsor for signature. The agreement is then signed by the sponsor. The Sponsor will be notified in writing by the DNR when the project begins.

### Project Funding Priorities:

Due to the response to the program, maintaining the present trail system is a high priority. The following list identifies the projects approved by the DNR.

1. The first priority for funding is for projects that are receiving approval for rerouting.

# PROGRAM SUMMARY

## Local Units of Government Responsibilities:

A local unit of government will be identified as "sponsor" and could be a county, township or city. The sponsor is accountable to the State for expenditures charged to the program.

Trail user organizations generally enter into contracts with the sponsor to physically perform the work necessary in developing and maintaining the local trail system. The following steps are the most common procedure in trail system development through the Snowmobile Trails Assistance Program:

1. A trail user club or organization identifies a demand for trails in their area.
2. The club or organization submits the necessary program forms (refer to page 4 and 6) to the sponsor. Sponsorship must be in the form of a resolution from the sponsor.
3. The club and sponsor enter into an agreement (refer to page 14). The sponsor then signs the necessary forms and submits the project to the DNR for approval.
4. Upon DNR approval of the project, an agreement is sent to the sponsor for authorized original signatures. The agreement is then returned to the DNR. The Sponsor will be notified in writing that the agreement has been consummated. Only after notification in writing by the DNR can work on the project begin.

## Project Funding Priorities:

Due to the response to the program and cost of maintaining the present trail systems, it is now impossible to approve all of the projects now being submitted. The following list identifies the order in which projects will be approved by the DNR:

1. The first priority for funding will be existing trails that are receiving acceptable use and do not require rerouting.

2. The second priority will be trails which will connect populations centers, and recreation and service facilities and which will connect and/or expand other trail systems.

3. The third priority will be new trail systems or significant additions to currently funded mileage.

To ensure a fair statewide distribution of grants, regional factors will be considered in funding new trails. These factors include existing use per mile of trail, number of snowmobiles registered in the county, existing trail mileage, ability to hold snow, and tourism considerations.

## Program Forms:

The following five forms are listed to identify the basic paperwork necessary for the Snowmobile Trails Assistance Program:

1. **Application Form:** This form is used to explain and provide maintenance funding for trail systems already in the Assistance Program.
2. **Project Proposal Form:** This form is the instrument for proposing a new trail project that has not been funded by this program.
3. **Agreement Form:** This form is the legal document between the State and sponsor. This document sets aside funding and identified conditions agreed to by both parties. Only after notification in writing by the DNR can work on the project begin.
4. **Request for Reimbursement Form:** This form is submitted as a summation of expenses incurred and as the request for payment of allowable charges.
5. **Worksheet and Groomer Log Sheet:** These sheets are submitted with the Request for Reimbursement and are the actual time sheets for labor, materials, contract services, etc.

# ALLOWABLE CHARGES

## INTRODUCTION:

All the charges listed below must be directly related to the acquisition, development, maintenance and grooming of your trail system. No other charges will be accepted without prior approval from your Regional Trails & Waterways Coordinator.

## ADMINISTRATION CHARGES: (no more than 15 percent of total grant)

- Mileage and Labor — These charges may be reimbursed for preparing the paperwork and forms for the program, bookkeeping, paying invoices, attending necessary county board or DNR meetings, and obtaining bids for equipment rentals.
- Stamps — The cost of mailing necessary DNR forms, billings, bid requests, or maps. It is suggested that a list of mailings and materials mailed be kept on file.
- Telephone Calls — Long distance calls directly related to trail administration to vendors, the sponsoring agency, landowners, and the DNR will be accepted. It is suggested that a list of calls be kept on file.
- Office Supplies — The purchase of materials needed to fulfill the programs administration such as writing, typing and copying materials are acceptable. Office space rental is not an acceptable charge.
- Maps —
  - The cost of county maps that are to be submitted to the DNR as required by the program are reimbursable.
  - For maps that are printed for trail users identifying the trail route, etc., costs are reimbursable. The State will pay 65 percent of the actual printing cost if the map is made available to the public free of charge. **THESE MAPS WILL IDENTIFY THAT THE TRAIL SYSTEM IS A GIA TRAIL AND FUNDED BY THE DNR AND THAT DNR DOES NOT ENDORSE ANY OF THE ADVERTISERS ON THE MAP.**
- Meeting — The DNR allows charges for essential personnel to attend meetings directly related to the program. The general rule will be not more than four (4) people for a trail committee meeting and not more than two (2) people for a governmental meeting. Club meetings are not acceptable as chargeable meetings. Rental of meeting rooms is not an acceptable charge.

## ACQUISITION CHARGES: (65% reimbursable)

- Mileage and Labor — These charges are acceptable for alignment work, checking ownership records, and landowner contacts.
- Maps — The cost of securing maps necessary for aligning trail routes is reimbursable. County highway maps and topographic maps are acceptable -- aerial photography maps should receive DNR approval since costs can be extremely high.

- Permits and Easements — The program has done extremely well to date with landowner cooperation and low permit or easement costs. Costs incurred are reimbursable.

## DEVELOPMENT AND MAINTENANCE CHARGES: (65% reimbursable)

- Mileage and Labor — These charges are reimbursable for construction and maintenance of the trail system. A worksheet must be filled out for reimbursement identifying hours and dates work was performed.
- Equipment Rentals —
  - Heavy equipment work is reimbursable as needed for construction. The operator or vendor of the heavy equipment must be identified and an invoice submitted to the DNR for payment.
  - Bids — When equipment cannot be rented at the allowable costs, bids must be let to secure the necessary equipment. Three (3) hourly bids must be secured from vendors in your area. If three (3) bids cannot be secured, list the vendors contacted, date contacted, and vendor's response. When the bids have been secured, the Regional Trails & Waterways Coordinator must be contacted and approve the bids. After his approval, the equipment can be hired. The bids are then submitted with the request for reimbursement.
  - Hand power equipment rental is reimbursable. The operator or owner of the equipment must be identified on the worksheet for payment.

**NOTE:** Before any equipment rental or work is done, the rental costs must be within the allowable limits. If these limits cannot be met, bid procedures must be strictly adhered to or the billing will not be processed.

- Material — Charges may be submitted for materials used directly on the trail system. Materials may include, but are not limited to: lumber, paint, signs, gates, posts, fencing, culverts, fill, grass seed, bolts or other hardware, etc. If you have a question on any materials, it is best to contact your Regional Trails & Waterways Coordinator.
- Snow Plowing — Reimbursement for plowing parking lots will be acceptable when the parking lot is used solely for trail user parking. Parking areas at business establishments do not qualify for grants assistance. The maximum allotment per parking area per year will be \$200.00.
- Insurance — Club Liability Insurance — Maximum allowable charge, \$500.00 per club per year (65% reimbursable).
- Grooming — Includes packing by groomers and snowmobiles (when snow conditions require), and passes by groomers with drags that result in a smooth, rideable surface (90% reimbursable).

Date	Name	Time	Rate	Hours	Total	Description	
2-14	Ken Smith	8:00 a.m. 6:00 p.m.	\$22.00	9	\$198.00	Groomed Clubhouse to 7 Corners and return. 1 hour lunch break.	
2-15	Al Jones	7:00 a.m. 6:00 p.m.	\$22.00	10	\$220.00	Groomed Clubhouse to Palmer Road and return. 1 hour lunch break.	
<b>TOTALS</b>					292	\$1,320.00	Total Cost This Sheet Total State Cost (90%)
\$1,188.00							

# ALLOWABLE COSTS

## I. ACQUISITION, DEVELOPMENT, MAINTENANCE COSTS

State Cost 65% <i>Labor</i>	Total Cost <i>\$0.00</i>
Mileage	
Snowmobile	\$ .25/mile
Car	\$ .25/mile
Three-Wheel ATV	\$ .25/mile
Four-Wheel ATV	\$ .25/mile
Six-Wheel ATV	\$ .25/mile
Pickup	\$ .25/mile
4 x 4	\$ .30/mile
1-2 ton	\$ .30/mile
2 1/2 ton and up	\$ .40 mile
Power Tools	
Chainsaw	\$ 3.50/hour
Brushsaw	\$ 4.00/hour
Post Hole Digger	\$ 3.50/hour
Jari Mower	\$ 5.00/hour
Other Equipment (Includes Gas, Oil and Operator)	
Bobcat	\$24.00/hour
Small Tractor (less than 25 hp)	\$12.00/hour
Tractor	\$25.00/hour
Attachments (Additional Per Hour)	
Disc	\$ 2.00/hour
Power Take Off Equipment	\$ 9.00/hour
Brush Cutter (self-propelled)	\$30.00/hour
JD-350	\$35.00/hour
JD-450	\$45.00/hour
D-4	\$45.00/hour
D-6	\$60.00/hour
D-7	\$75.00/hour

## II. GROOMING

State Cost 90%  
Includes gas, oil, operator, repair, parts and service, insurance and drag.

Snowmobile	\$12.00/hour
Double Track Snowmobile	\$15.00/hour
S-W Groomer	\$15.00/hour
Trackster	\$16.00/hour
Ranger or Otter	\$16.00/hour
J-5	\$22.00/hour
QuadTrac	\$22.00/hour
Muskeg	\$25.00/hour
Snow Track	\$27.00/hour
Bombi	\$27.00/hour
ASV-Track Truck	\$27.00/hour
IMP	\$27.00/hour
Weasel	\$30.00/hour
SV-200	\$32.00/hour
Sno Master	\$32.00/hour
Thioicol 2100	\$35.00/hour
Thioicol SPRITE	\$35.00/hour
SV-252	\$36.00/hour
SV-301	\$36.00/hour
Tucker Sno Cat	\$36.00/hour

NOTE: COPIES OF ALL INVOICES OVER \$50.00 MUST BE SUBMITTED WITH EACH REQUEST FOR REIMBURSEMENT.

This agreement made 19\_\_\_\_, between \_\_\_\_\_ hereinafter referred to as \_\_\_\_\_ and \_\_\_\_\_ referred to as the club.

### WITNESSED:

Whereas the local unit to establish a public trail for public recreation program

Whereas the club agrees to maintain said trail, and

Whereas the State of Minnesota provides financial and technical assistance for the maintenance of an approved trail in connection with the program, hereinafter to be called \_\_\_\_\_

Now therefore it is agreed between the parties hereto:

The local unit of government of the State of Minnesota — District \_\_\_\_\_ shall provide the financial assistance for the acquisition of the necessary equipment in accordance with the provisions governing said assistance.




If said assistance is provided, the local government shall contribute to the acquisition of the necessary equipment for the subsequent construction of the trail.

NOTE: This sample, or a copy thereof, shall be provided to the local government participating in the program.

ATTACHMENT B  
North Dakota Snowmobile Trails and  
Red River Snowmobile Trail

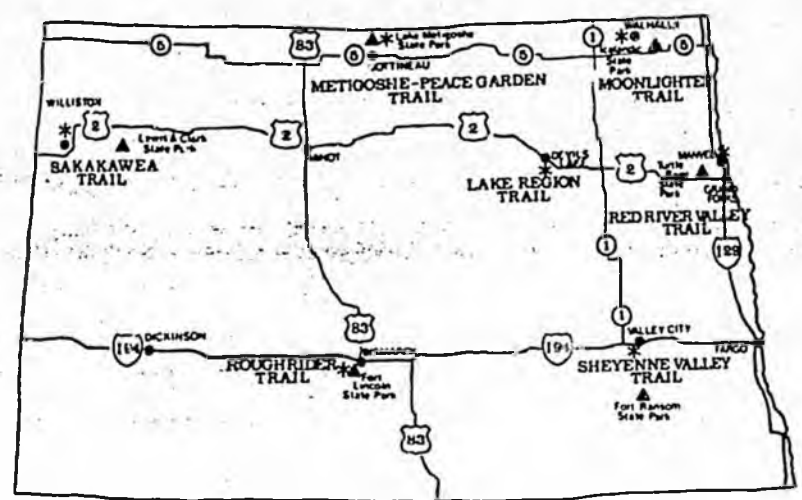
North Dakota Parks & Recreation Dept.  
 1424 W Century Ave. Suite 202  
 Bismarck, North Dakota 58501

# NORTH DAKOTA SNOWMOBILE TRAILS

TRAILHEAD	*
STATE PARK	▲
INTERSTATE HIGHWAY	
STATE HIGHWAY	
U.S. HIGHWAY	
CITIES	●

TRAIL	MILES	GROOMED
Metigoshe-Peace Garden	80	X
Red River Valley	20	X
Sheyenne Valley	45	X
Roughrider	22	X
Sakakawea	15	
Moonlighter	20	
Lake Region	26	



For further information on developing trails or acquiring specific trail maps, please contact the Snowmobile Coordinator, N.D. Parks and Recreation Dept., 1424 West Century Ave., Suite 202, Bismarck, ND 58501

For snow conditions call Frostline: 1-800-472-2100

North Dakota offers seven state snowmobile trails for public use. Scenic rides through the forested Turtle Mountains and spectacular Pembina River Gorge provide hours of snowmobiling adventure along North Dakota's northern border. The eastern portion of the state claims two trails winding through the Red River Valley and the Sheyenne River Valley. One trail located in south central North Dakota follows an abandoned railroad right-of-way connecting Fort Abraham Lincoln State Park and Fort Rice Historic Site. The rolling hills and woody draws of northwestern North Dakota paint a picturesque setting for snowmobiling along Lake Sakakawea, while the Devils Lake Area features riding through forested lake trails.

#### DEVELOPMENT

of North Dakota's snowmobile trail system is made possible through snowmobile registration fees. Six dollars out of every eight dollar registration fee is earmarked for the Snowmobile Trail Tax Fund. The remaining two dollars goes to the State Motor Vehicle Department for administration. The North Dakota Parks and Recreation Department, in conjunction with a Snowmobile Advisory Council, has been charged with the responsibility of administering the Trail Tax Fund. The snowmobile program is designed to assist local snowmobiling groups when an interest in trail development is present.

#### FUNDING

for snowmobile trails may be obtained through application to the North Dakota Parks and Recreation Department. June 1 of every year marks the deadline for funding requests. Once the application is approved by the Snowmobile Advisory Council and the North Dakota Parks and Recreation Department, funds may be spent on trail development and maintenance.

#### TRAIL ROUTE ACQUISITION

relies totally on lease agreements between landowners and the Department. Local clubs determine trail routes and are initially responsible for acquiring landowner approval. Leases are signed by the landowner allowing snowmobile use on designated lands. To date, approximately 90 landowners lease land for minimal cost to provide snowmobile trails.

#### LIABILITY INSURANCE

is provided up to \$1,000,000 for property damage and bodily injury for all landowners who sign a lease agreement.

#### TRAIL SIGNS

are provided by the Department and installed along trail routes by snowmobile club volunteers.

#### GROOMING

equipment is purchased through the Snowmobile Trail Tax Fund and provided on major trail systems in high use areas.

The North Dakota Snowmobile Program is a cooperative effort between the North Dakota Parks and Recreation Department, snowmobilers, private landowners, and various state, federal, and private agencies. The scope of the program is to provide safe and lawful operation of snowmobiles in designated areas of the state. Discover North Dakota this winter -- on a snowmobile.

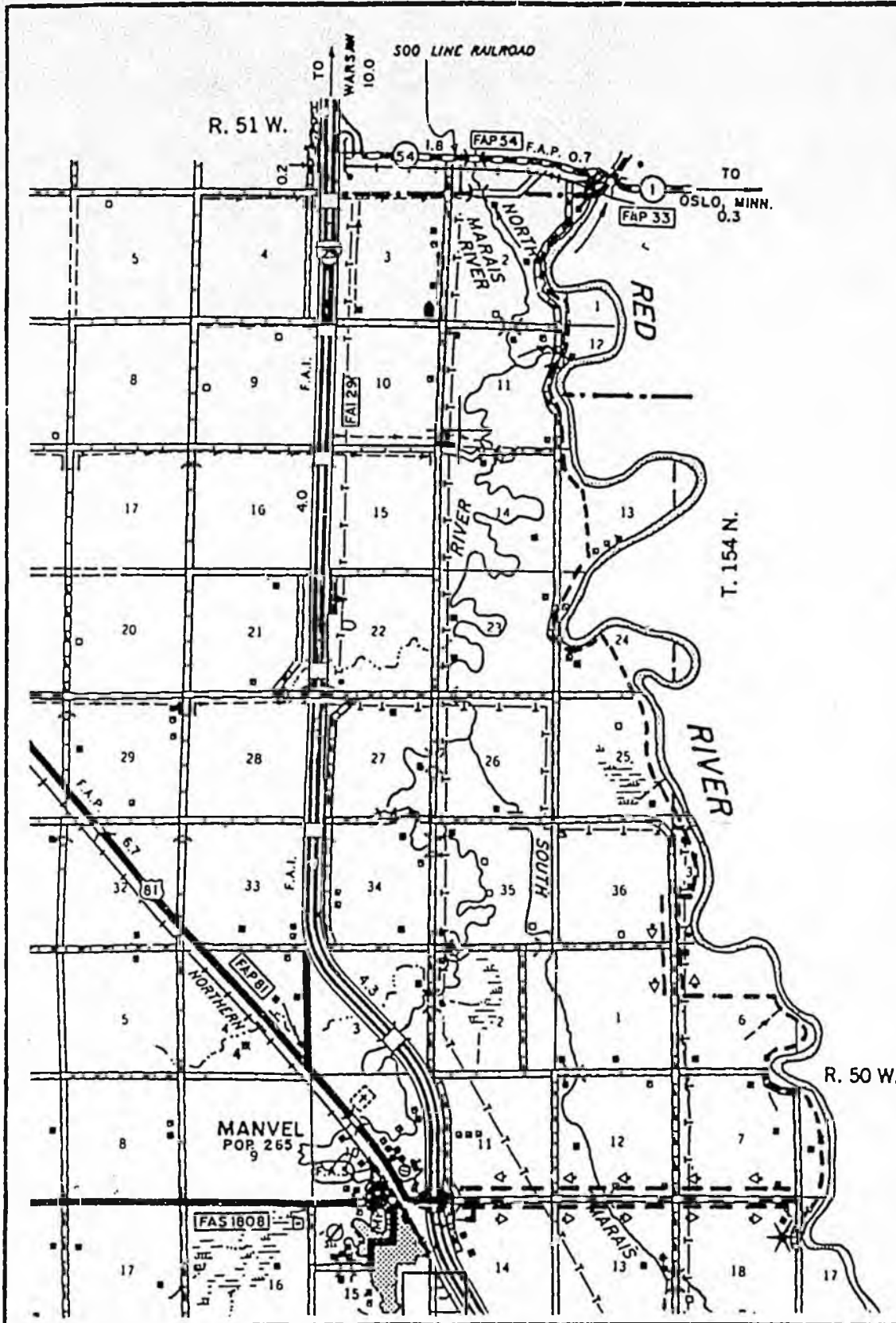




# RED RIVER SNOWMOBILE TRAIL

MANVEL, ND.  
ABOUT 20 MILES

--- TRAIL  
\* TRAILHEAD  
- - - ONE-WAY TRAIL



## NORTH DAKOTA SNOWMOBILE TRAILS PROGRAM

North Dakota snowmobile trails have been provided through your snowmobile registration fees. Currently \$6.00 out of every \$8.00 registration fee is placed directly in the Snowmobile Trail Tax Fund specifically for the development and maintenance of these trails. Private landowners have generously leased their lands in order to furnish a trail for the public to enjoy. Please respect their rights.

With cooperation of local snowmobile clubs, approximately 250 miles of trail are open to the general public this winter for riding. In order to legally and safely operate on these trails the following items should be stressed:

1. "No person shall operate any snowmobile unless the snowmobile has been registered" (NDCC 39-24-02).
2. "It shall be unlawful for any person to operate a snowmobile without having possession of a valid driver's license or permit" or "has received the appropriate snowmobile safety certificate" (NDCC 39-24-09 and 39-24.1).
3. "It shall be unlawful for any person to drive or operate any snowmobile... in a careless, reckless, or negligent manner" or "while under the influence of intoxicating liquor" (NDCC 39-24-09).

Snowmobiling is an exciting and growing sport in North Dakota. In order to appreciate our statewide resources and promote snowmobiling as a healthy, safe and enjoyable recreational activity, we must respect our environment and the rights of other trail users. North Dakota law prohibits snowmobiling within many municipalities. Please contact local law enforcement agencies to find out current snowmobiling rules and regulations.

As you experience the winter splendor of North Dakota up close, keep in mind the following Code of Ethics. Have fun and ride safely.

### CODE OF ETHICS

1. I will be a good sports enthusiast. I recognize that people judge all snowmobile owners by my actions. I will use my influence with other snowmobile owners to promote fair conduct.
2. I will not litter trails or camping areas. I will not pollute streams or lakes.
3. I will not damage living trees, shrubs, or other natural features. I will go out only when there is sufficient snow so that I will not damage the land.
4. I will respect other people's property and rights.
5. I will lend a helping hand when I see someone in distress.
6. I will make myself and my vehicle available to assist search and rescue parties.
7. I will not interfere with or harass hikers, skiers, snowshoers, ice anglers or other winter sports enthusiasts. I will respect their rights to enjoy our recreation facilities.
8. I will know and obey all federal, state/provincial and local rules regulating the operation of snowmobiles in areas where I use my vehicle. I will inform public officials when using public lands.
9. I will not harass wildlife. I will avoid areas posted for the protection or feeding of wildlife.
10. I will stay on marked trails or marked roads open to snowmobiles. I will not snowmobile where prohibited.

For further information, please contact the North Dakota Parks and Recreation Department, 1424 West Century Avenue, Suite 202, Bismarck, ND 58501. (701) 224-4887, or John Bushaw, Red River Valley Trail Coordinator, (701) 696-2503. For snow conditions, call the "Frostline" state toll-free number, 1-800-472-2100.

**CAUTION** - There may be areas marked on the reverse side representing water crossings which are not covered by state liability insurance. Please use your discretion.

ATTACHMENT C  
How The Snowmobile Trails Program Is Provided In The  
State of Vermont

Prepared by: George E. Plumb  
Recreation Division Director

HOW THE SNOWMOBILE TRAILS PROGRAM IS PROVIDED IN THE STATE OF VERMONT  
1/22/87

The Vermont Snowmobile Trails Program begins with the registration of the snowmobile machines. The registration fee is currently \$10.00 for residents and \$17.00 for nonresidents. As of this date, there are approximately 20,000 Vermont registrations and 4,000 nonresident registrations. People who register their machines in a state that has reciprocity with Vermont do not have to register in Vermont. This includes most of the states in the Northeast.

Under present laws 75% of the registration receipts go to the Agency of Environmental Conservation, "for development and maintenance of snowmobile trails on public and private lands," and the remaining 25% into the Transportation Fund. The AEC receipts are "dedicated funds," and any unspent money is carried over from one fiscal year to the next for snowmobiling use only. For FY'87 only an additional \$10,000 was appropriated from the Transportation Fund.

The Legislature each year appropriates the expenditures for the snowmobile funds as a separate budget item. For the current fiscal year the expenditures are as follows:

Personal Services	\$ 3,200	(staff time)
Operating	10,000	(primarily snowmobile construction on State lands)
Grants	<u>151,800</u>	(Contract with VAST)
	\$165,000	

If receipts exceed those anticipated in the budget, approval is requested from the Secretary of Administration to put the additional money into the grants.

After the Legislature adjourns, the Governor's Snowmobile Advisory Council meets to approve a plan for the expenditure of the funds. This Council consists of representatives from State and Federal agencies involved in snowmobiling, one each from the Vermont House and Senate and the Vermont Association of Snow Travelers (VAST). The plan includes a detailed budget of how the funds are to be spent.

Following the Snowmobile Advisory Council Meeting, the Contract between VAST and the Department of Forests, Park and Recreation is signed for next fiscal year. This contract provides for VAST to build, maintain, and provide information about the state snowmobile trails system. VAST employs a full-time snowmobile trails coordinator and a part-time secretary to carry out this contract.

Except for the preparation of public information, the VAST Trails Coordinator does not do any of the direct work on the Trails Program. Instead, he subcontracts with local and county snowmobile clubs. Grants are provided to those local groups to, 1) assist in the construction of trails; generally 80% of the cost of materials (culverts, bridge materials, seed, etc.) and purchased services (bulldozing and other heavy equipment); 2) assist in the purchase of groomers (grants of 25%), which may cost as much as \$47,000 to clubs; and 3) assist in the cost of trail grooming. Clubs are reimbursed on a per mile basis, which currently ranges from \$1.00 to \$5.75 per mile depending on the type of equipment used. There are approximately 2,065 miles of trails that are groomed. For the current fiscal year there is only enough money to groom the trails five times. Trails should be groomed at least once a week during the entire snow season.

HOW THE SNOWMOBILE TRAILS PROGRAM IS PROVIDED IN THE STATE OF VERMONT  
Prepared by: George E. Plumb, Recreation Division Director

Page 2  
1/22/87

The Vermont way of administering snowmobile trails is highly successful. Most other states use State employees to do most of the trail work. Vermont leverages its funds by utilizing the hard work and talents of hundreds of volunteers who build and maintain the trails.

## VAST CONTRACTUAL BUDGET FOR FY'87

## EXPENSES:

## 1. OPERATIONS

Trails Coordinator	\$ 18,058
Office Secretary	5,446
Employee Benefits	4,500
Office Rental	2,250
Office Supplies/Miscellaneous	3,500
Travel/Expense	4,200
Professional Audit	<u>1,000</u>

\$ 38,954

## 2. TRAIL SIGNS

7,500

3. SECONDARY TRAILS - CONSTRUCTION  
AND MAINTENANCE (No Grooming)

5,346

## 4. CORRIDOR TRAILS

Equipment Grants	\$ 25,000
Winter Grooming	<del>108,000</del> <del>80,000</del>
Construction and Summer Maintenance	<u>30,000</u>

\$135,000 ~~163,000~~

## 5. PARKING LOT PLOWING

2,000

## 6. PUBLIC INFORMATION

3,000

TOTAL EXPENSES

\$191,800

## SOURCE OF FUNDS

FY'87 SNOWMOBILE APPROPRIATION	\$151,800
<i>EXCESS RECEIPTS</i>	<i>28,000</i>
TRANSFER FROM TRANSPORTATION FUND	<u>40,000</u>

~~\$191,800~~~~\$219,800~~

Notes: Past contracts have provided for expenses for public liability insurance. For FY'87, this expense will be covered from VAST General Fund, and will not be funded through this contract.

ATTACHMENT D  
Session Laws of Wyoming, 1985 and  
Wyoming Snowmobile Program 1986 - 1987 Season  
Tenative Snowmobile Budget Breakdown, July 25, 1986

**23-1-302. Powers and duties.**

(b) Notwithstanding subsection (a) of this section, the commission shall not ban the use of lead shot except in areas where shotgun shell pellets will exceed twenty thousand (20,000) per acre as determined by sampling methods approved by the commission. Banned lead shot areas shall not exceed areas reasonably necessary for practical enforcement of the ban.

**Section 2.** This act is effective May 23, 1985.

Approved February 12, 1985.

**CHAPTER 54**

Original Senate File No. 127

**TELEPHONE AND TELEGRAPH COMPANIES**

AN ACT to repeal W.S. 39-2-205 relating to taxation; eliminating a gross revenue factor to be used in valuing telephone and telegraph companies; and providing for an effective date.

*Be It Enacted by the Legislature of the State of Wyoming:*

**Section 1.** W.S. 39-2-205 is repealed.

**Section 2.** This act is effective immediately upon completion of all acts necessary for a bill to become law as provided by Article 4, Section 8 of the Wyoming Constitution.

Approved February 13, 1985.

**CHAPTER 55**

Original Senate File No. 229

**SNOWMOBILE GASOLINE TAX DISTRIBUTION**

AN ACT to amend W.S. 39-6-210(c)(v) and by creating a new paragraph (vi) relating to gasoline taxes; providing such taxes from gasoline used in snowmobiles shall be used to improve snowmobile trails; and providing for an effective date.

*Be It Enacted by the Legislature of the State of Wyoming:*

Section 1. W.S. 39-6-210(c)(v) and by creating a new paragraph (vi) is amended to read:

39-6-210. Distribution of gasoline license taxes.

(c) The state treasurer shall make deductions from the taxes collected under this article in the following order:

(v) Deduct the amount necessary to refund the taxes paid on gasoline used for agricultural purposes as provided by W.S. 39-6-211;

(vi) Deduct an amount collected on fuel used in snowmobiles, computed by multiplying the number of snowmobiles registered during the current fiscal year under W.S. 31-2-402 times eight dollars (\$8.00). The amount computed shall be credited to an account within the earmarked revenue fund to be expended by the recreation commission to improve snowmobile trails in Wyoming.

Section 2. This act is effective May 23, 1985.

Approved February 13, 1985.

## CHAPTER 56

Original House Bill No. 148

### ESTABLISHMENT OF PRIVATE ROADS

AN ACT to amend W.S. 24-9-101 relating to private roads; changing notice requirements; authorizing viewers to locate a private road other than as indicated in the application; providing limitations; and providing for an effective date.

*Be It Enacted by the Legislature of the State of Wyoming:*

Section 1. W.S. 24-9-101 is amended to read:

24-9-101. Petition; hearing; appointment of viewers and appraisers, etc. Any person whose land has no outlet to, nor connection with a public road, may apply in writing to the board of county commissioners of his county for a private road leading from his premises to some convenient public road. At least sixty (60) days prior to applying to the board, the applicant shall give notice in writing to the owner, resident agent or occupant of all lands over which the private road is applied for, of his intent to apply for a private road. If the owner of the land is a nonresident, and there is no resident agent upon which personal service can be had, then the notice may be published once a week for three (3) weeks in a newspaper published in the county. The last publication shall be at least thirty (30) days before the hearing of the application. At the hearing, all parties interested may appear and be heard by the board as to the necessity of the road and all matters pertaining thereto. Upon the

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(c) Every bicycle shall be equipped with a brake which will enable the operator to make the braked wheels skid on dry, level, clean pavement. (Laws 1955, ch. 225, § 80; W.S. 1957, § 31-169.)

## ARTICLE 8. SNOWMOBILES

### § 31-5-801. Operation of snowmobiles on highways.

(a) Snowmobiles may be operated upon the highways of Wyoming subject to the following conditions:

(i) Snowmobiles may be operated within the right-of-way but not on the main traveled roadway except as provided hereafter;

(ii) Crossings of main-traveled roadways shall be made at right angles to the roadway or as nearly so as practicable, but in any case yielding the right-of-way to all traffic in the main-traveled roadway;

(iii) Snowmobiles may be operated on the highways within the cities and towns pursuant to ordinance;

(iv) Snowmobiles may be operated on the main-traveled roadway when the highway is closed to wheeled vehicular traffic. (Laws 1973, ch. 194, § 1.)

ALR3d references. — Accidents involving negligence in operation of snowmobile, skimobile, or similar vehicle, 42 ALR3d 1422.

Criminal liability based on violation of statute or ordinance specifically regulating operation of snowmobile, 45 ALR3d 1438.

## ARTICLE 9. EQUIPMENT

### *Division 1. Generally*

Cross references. — As to motorcycles and motorcycle riders, see § 31-5-116. As to bicycles, see § 31-5-706. For Vehicle Equipment Safety Compact and related provisions, see §§ 31-15-101 to 31-15-105.

Am. Jur. 2d, ALR and C.J.S. references. — 7 Am. Jur. 2d Automobiles and Highway Traffic §§ 149 to 167.

Comment note on effect of violation of safety equipment statute as establishing negligence in automobile accident litigation, 38 ALR3d 530.

Validity and construction of safety standards issued under National Traffic and Motor Vehicle Safety Act of 1966, as amended (15 U.S.C. § 1381 et seq.), 6 ALR Fed. 988.  
60 C.J.S. Motor Vehicles § 26.

### § 31-5-901. Scope and effect of regulations.

(a) It is a misdemeanor for any person to drive or move or for the owner to cause or knowingly permit to be driven or moved on any highway any vehicle or combination of vehicles which is in such unsafe condition as to endanger any person, or which does not contain those parts or is not at all times equipped with such lamps and other equipment in proper condition and adjustment as required

Cross references. — As to use of dealer plates, see § 31-2-211.

Am. Jur. 2d, ALR and C.J.S. references.

— 7A Am. Jur. 2d Automobiles and Highway

Traffic § 153.

60 C.J.S. Motor Vehicles § 106.

ARTICLE 4. SNOWMOBILES

Cross references. — As to operation of snowmobiles on highways, see § 31-5-801. ute or ordinance specifically regulating operation of snowmobile, 45 ALR3d 1438.

Am. Jur. 2d, ALR and C.J.S. references.

— Criminal liability based on violation of stat-

§ 31-2-401. "Snowmobile" defined.

"Snowmobile" means any mechanically driven vehicle of a type which utilizes sled type runners, or skis, or any endless belt tread or combination of these, designed primarily for operation over snow. (Laws 1984, ch. 47, § 3.)

Am. Jur. 2d, ALR and C.J.S. references.

— 7A Am. Jur. 2d Automobiles and Highway

Traffic § 5.

§ 31-2-402. Registration selling agents; application for registration.

(a) The recreation commission, with the advice of the director, shall receive applications from and appoint registration selling agents to sell snowmobile registrations. Newly appointed agents shall pay for, and give, a one thousand dollar (\$1,000.00) surety or property bond to the recreation commission. The surety or property bond shall be conditioned upon the proper performance of his duties and accounting for all money that may have come into his hands as a selling agent. Persons who have served as selling agents for a period of one (1) year or longer shall pay for, and give, a similarly conditioned surety or property bond on the basis of the total snowmobile registration sales for the previous year as follows:

- (i) Sales to \$3,000.00 . . . . . \$1,000.00 bond
- (ii) Sales from \$3,000.01 to \$6,000.00 . . . . . \$2,000.00 bond
- (iii) Sales from \$6,000.01 to \$10,000.00 . . . . . \$3,000.00 bond
- (iv) Sales over \$10,000.00 . . . . . \$5,000.00 bond

(b) Each selling agent shall retain one dollar (\$1.00) for each registration he sells. For failure to comply with this section, selling agents are not entitled to one dollar (\$1.00) per registration sold and are liable on their bond. Designated recreation commission employees may sell snowmobile registrations but no employee of the recreation commission shall receive any commission on registrations sold.

(c) On or before the tenth day of each month, every selling agent shall file a report for the preceding month with the recreation commission on forms provided by the recreation commission. Selling agents shall also remit all money collected during the previous month less commission and shall account

for, and deliver, all surplus and damaged registration decals to the recreation commission.

(d) Except as hereafter provided, every person who owns or uses a snowmobile which will be operated within the state of Wyoming shall, for each snowmobile so owned or used file or cause to be filed each year beginning July 1, with any designated registration selling agent, an application for registration of the snowmobile which shall be in writing in duplicate. The application shall state the name and address of the owner and the name of the applicant and describe the snowmobile, including make, model and any identifying serial numbers located on the snowmobile. (Laws 1984, ch. 47, § 3.)

**Cross references.** — As to recreation commission generally, see ch. 4 of title 36.

**Meaning of "director".** — The reference to the "director" in the first sentence of subsection

(a) is seemingly a reference to the director of the recreation commission, which office is created by § 36-4-114.

#### § 31-2-403. Required registration fee.

The owner of a snowmobile which will be operated within the state of Wyoming shall, upon the filing of an application, pay to the registration selling agent, in cash, money order, certified check or bank draft, a registration fee as provided by W.S. 31-2-404. (Laws 1984, ch. 47, § 3.)

#### § 31-2-404. Amount of fee; ad valorem tax exemption; disposition of fees; duties of recreation commission.

(a) The annual registration fee for a snowmobile is ten dollars (\$10.00).

(b) Snowmobiles are hereby exempt from any and all ad valorem taxes.

(c) The registration selling agent shall forward to the recreation commission nine dollars (\$9.00) of each registration fee as provided for in W.S. 31-2-401 through 31-2-408 to be deposited to the general fund together with the original copy of the registration application.

(d) The recreation commission of Wyoming shall:

(i) Administer the snowmobile trails program;

(ii) Furnish a sufficient quantity of numbered decals and necessary forms to each registration selling agent; and

(iii) Keep full and complete records of all registered snowmobiles.

(Laws 1984, ch. 47, § 3.)

#### § 31-2-405. Payment of fees; issuance of certificate and decal.

Snowmobile registration fees shall be paid before the expiration of sixteen (16) days after acquiring ownership of a snowmobile which will be operated within the state of Wyoming. Upon receipt of the registration fee the registration selling agent shall issue to the owner for each snowmobile a certificate

of registration, setting forth the facts in the application, together with a numbered decal which shall bear a distinctive number assigned to the snowmobile which shall at all times be prominently displayed on the snowmobile. (Laws 1984, ch. 47, § 3.)

**§ 31-2-406. Lost, mutilated or destroyed certificate or decal.**

In the event of loss, mutilation or destruction of any registration certificate, or numbered decal, the owner of a snowmobile may obtain a duplicate registration certificate or a new numbered decal from any registration selling agent or any authorized recreation commission employee upon filing an affidavit showing the loss, mutilation or destruction of the original registration certificate or numbered decal and paying a fee of one dollar (\$1.00). The registration selling agent shall forward to the recreation commission fifty cents (\$.50) of each duplicate registration certificate fee to be deposited to the general fund. It is unlawful for any person to willfully alter or mutilate any registration certificate or numbered decal. (Laws 1984, ch. 47, § 3.)

**§ 31-2-407. Duration of certificate and number.**

Every certificate and number issued pursuant to W.S. 31-2-401 through 31-2-408 shall continue in full force and effect to and until and shall expire on July 1, each year. The use of license plates or decals issued during any registration year is hereby authorized and legalized until and including the first day of August of the next succeeding registration year. (Laws 1984, ch. 47, § 3.)

**§ 31-2-408. Exemptions.**

(a) The following snowmobiles are exempt from W.S. 31-2-401 through 31-2-408:

- (i) Mobile track-laying units;
  - (ii) Snowmobiles used solely for business and agricultural purposes;
- and
- (iii) Snowmobiles owned by out-of-state residents if a valid registration sticker from the owner's state of residence is affixed to those snowmobiles or if the owner can demonstrate other proof of valid registration in his state of residence.

(b) This section does not exempt snowmobiles which are leased or rented. (Laws 1984, ch. 47, § 3.)

§ 31-4-104. General penalty.

Any person who violates any provision of this act for which no separate penalty is provided upon conviction shall be punished by a fine not to exceed seven hundred fifty dollars (\$750.00), imprisonment not to exceed six (6) months, or both. (Laws 1984, ch. 47, § 3.)

**Cross references.** — As to penalties for violations of provisions regulating traffic on highways, see § 31-5-1201.

**Meaning of "this act".** — For the definition of "this act," referred to in this section, see § 31-1-101(a)(xxii).

## CHAPTER 19

### Liability of Owners of Land Used for Recreation Purposes

Sec.	Sec.
34-19-101. Definitions.	34-19-105. When landowner's liability not limited.
34-19-102. Landowner's duty of care or duty to give warnings.	34-19-106. Duty of care, etc., not created; duty of care of persons using land.
34-19-103. Limitations on landowner's liability.	
34-19-104. Application to land leased to state or political subdivision thereof.	

*Law review.* — See comment, "The Status of Visitors in the National Parks Located in Wyoming — Federal Liability Under Current Applicable Wyoming Law," 2 Land & Water L. Rev. 447 (1967).

#### § 34-19-101. Definitions.

(a) As used in this act [§§ 34-19-101 to 34-19-106]:

(i) "Land" means land, roads, water, watercourses, private ways and buildings, structures, and machinery or equipment when attached to the realty;

(ii) "Owner" means the possessor of a fee interest, a tenant, lessee, occupant or person in control of the premises;

(iii) "Recreational purpose" includes, but is not limited to, any of the following, or any combination thereof: hunting, fishing, swimming, boating, camping, picnicking, hiking, pleasure driving, nature study, water skiing, winter sports, and viewing or enjoying historical, archaeological, scenic, or scientific sites;

(iv) "Charge" means the admission price or fee asked in return for invitation or permission to enter or go upon the land. (Laws 1965, ch. 9, § 1.)

#### § 34-19-102. Landowner's duty of care or duty to give warnings.

Except as specifically recognized by or provided in section 5 of this act [§ 34-19-105], an owner of land owes no duty of care to keep the premises safe for entry or use by others for recreational purposes, or to give any warning of a dangerous condition, use, structure, or activity on such premises to persons entering for such purposes. (Laws 1965, ch. 9, § 2.)

The duty of care owed by the owner of land to an invitee is to use ordinary and reasonable care to keep the premises reasonably safe for his visit and to warn him of any hidden danger.

*Smith v. United States.* 383 F. Supp. 1076 (D. Wyo. 1974).

*Duty of invitee.* — Even though a person is an invitee this does not relieve him of the duty to

exercise ordinary care for his own safety under all the attendant facts and circumstances. *Smith v. United States*, 383 F. Supp. 1076 (D. Wyo. 1974).

**Duty of care of national park service.** — Where the national park service of the department of the interior of the United States of America was foreclosed by its own regulation from charging any fee to plaintiff, it owed no

duty of care to plaintiff to keep the premises, a national park, safe for his entry or his use for recreational purposes, nor did it owe any duty to give him any warning of any dangerous condition, use, structure, or activity on the premises because he was entering for recreational purposes. *Smith v. United States*, 383 F. Supp. 1076 (D. Wyo. 1974).

### § 34-19-103. Limitations on landowner's liability.

(a) Except as specifically recognized by or provided in section 5 of this act [§ 34-19-105], an owner of land who either directly or indirectly invites or permits without charge any person to use such property for recreational purposes does not thereby:

- (i) Extend any assurance that the premises are safe for any purpose;
- (ii) Confer upon such person the legal status of an invitee or licensee to whom a duty of care is owed;
- (iii) Assume responsibility for or incur liability for any injury to person or property caused by an act of omission of such persons. (Laws 1965, ch. 9, § 3.)

### § 34-19-104. Application to land leased to state or political subdivision thereof.

Unless otherwise agreed in writing, the provisions of sections 2 and 3 of this act [§§ 34-19-102 and 34-19-103] shall be deemed applicable to the duties and liability of an owner of land leased to the state or any subdivision thereof for recreational purposes. (Laws 1965, ch. 9, § 4.)

### § 34-19-105. When landowner's liability not limited.

(a) Nothing in this act [§§ 34-19-101 to 34-19-106] limits in any way any liability which otherwise exists:

- (i) **Failure To Warn Against Dangerous Condition.** — For willful or malicious failure to guard or warn against a dangerous condition, use, structure, or activity;
- (ii) **Where Landowner Charges For Entry.** — For injury suffered in any case where the owner of land charges the person or persons who enter or go on the land for the recreational use thereof, except that in the case of land leased to the state or a subdivision thereof, any consideration received by the owner for such lease shall not be deemed a charge within the meaning of this section. (Laws 1965, ch. 9, § 5.)

**Duty of care of national park service.** — Where the national park service of the department of the interior of the United States of America was foreclosed by its own regulation from charging any fee to plaintiff, it owed no

duty of care to plaintiff to keep the premises, a national park, safe for his entry or his use for recreational purposes, nor did it owe any duty to give him any warning of any dangerous condition, use, structure, or activity on the

§ 34-19-106 PROPERTY AND SECURITY TRANSACTIONS § 34-19-106

premises because he was entering for recreational purposes. *Smith v. United States*, 383 F. Supp. 1076 (D. Wyo. 1974).

**§ 34-19-106. Duty of care, etc., not created; duty of care of persons using land.**

(a) Nothing in this act [§§ 34-19-101 to 34-19-106] shall be construed to:

(i) Create a duty of care or ground of liability for injury to persons or property;

(ii) Relieve any person using the land of another for recreational purposes from any obligation which he may have in the absence of this act to exercise care in his use of such land and in his activities thereon, or from the legal consequences of failure to employ such care. (Laws 1965, ch. 9, § 6.)

WYOMING SNOWMOBILE PROGRAM  
1986-87 SEASON  
TENTATIVE SNOWMOBILE BUDGET BREAKDOWN  
July 25, 1986

Fiscal Year 1986 Gas Tax Fund Carryover	\$ 23,600.
Fiscal Year 1987 Gas Tax Fund	\$ 105,488.
Fiscal Year 1987 General Fund	\$ 106,564.
 TOTAL BUDGET	 \$ 235,652.

I. Administration

A. Printing 1986-87 Registration Forms and Decals=	\$ 3,600.
B. Printing Trail Map Brochures=	\$ 5,000.
C. Radio Broadcasts-Trail Condition Reports=	\$ 3,500.
D. Promotion (News Releases, Advertising Materials)=	\$ 1,500.
E. Mailing (Postage, Envelopes etc.)=	\$ 300.
F. Expenditure Study Printing=	\$ 1,200.
G. Inspections (Travel and Per Diem)=	\$ 9,000.
H. Computer Services (Data Entry Operator and Computer Time)=	\$ 6,200.
SUBTOTAL=	\$ 30,300.
Percentage of Total Budget=	12.9%

II. New Equipment and Supplies

A. Two (2) Ski-Doo Alpine Double Track Snowmobiles=	\$ 12,000.
B. Three (3) Single Track Snowmobiles=	\$ 12,000.
C. Six (6) small snow groomers (4 1/2 ft. wide)=	\$ 7,200.
D. Two (2) large snow groomers (8-10 ft. wide)=	\$ 9,000.
E. Two (2) Four-place Trailers=	\$ 3,500.
F. Trail Signing	\$ 2,800.
SUBTOTAL=	\$ 46,500.
Percentage of Total Budget=	19.7%

III. Trail Maintenance and Development

A. Snowmobile Area Distribution

1. Pahaska Teepee (51)	
Salary=	\$ Park Staff
Contract=	\$ ----
Machine Maintenance and Repair=	\$ 2,042.
Plowing=	\$ ----
Total=	\$ 2,042.

\* Funding Recommended by the WRC