Decade of Decision

Proceedings of the
33rd Annual Conference
of
The Rural Electric Management
Development Council

May 21 - 23, 1990
Caesars Tahoe Resort
Lake Tahoe, Nevada

PROCEEDINGS OF THE

33rd ANNUAL CONFERENCE

OF THE

RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL

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Caesars Tahoe Resort
Lake Tahoe, Nevada
May 21-23, 1990

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S C O P E

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COUNCIL PREAMBLE

In March 1969 the NRECA membership adopted viewpoints and objectives for rural electrification as prepared by the Long Range Study Committee. This action has significance only when member systems identify with, and develop programs in support of, these viewpoints and objectives. Success in the implementation of such action programs is dependent upon excellent leadership and the effective management of resources, especially human resources.

NRECA, through its Management Services Department, has carried on effective training and development programs for rural electric system managements, both elected and employed, and the results of these programs are obvious in the upgrading of the quality of management in recent years. However, NRECA has limited resources for the research, experimentation, and innovations in management practices that will be required to meet the demands of a rapidly changing social order. Moreover, REA continues to withdraw its advice and assistance to borrowers.

Thus, it is clear that some systems must assume a more active role in assuring competent, dynamic management for the future. There are people within the program who are qualified and willing to see that the necessary study and research are undertaken toward this end. Such people have formed the Rural Electric Management Development Council and the following statements express their viewpoints and objectives.

STATEMENT OF VIEWPOINTS

1. We believe that the objectives of the Rural Electric Program can best be achieved through dynamic management and leadership that is based on sound cooperative philosophy coupled with modern management principles and techniques.

2. We believe that cooperative philosophy and management principles and techniques must be under constant study and review and that research and development of new concepts and approaches must be undertaken if rural electric systems are to effectively fulfill the responsibilities inherent in the objectives of the Rural Electric Program.

3. We believe that there exists within the rural electric cooperatives, and their associated organizations, the knowledge, experience and point of view necessary to identify these needs and to determine required changes.

4. We believe that there exists among rural electric cooperatives, and their associated organizations, those who are willing to innovate, study and improve present cooperative and management principles and practices and to translate the results of such studies into meaningful programs.

RURAL ELECTRIC
MANAGEMENT DEVELOPMENT COUNCIL

STATEMENT OF VIEWPOINTS (continued)

5. We believe that rural electric system management will be enhanced where there has been a maximum exchange of ideas and experiences between those organizations that are innovating, studying and applying up-to-date principles and techniques.

6. We believe that all consumer-owned rural electric systems should have the opportunity to share in the results of such innovations in management practices and that this opportunity for sharing can best be provided through NRECA and other associated organizations.

STATEMENT OF OBJECTIVES

1. To bring together key rural electric management people who have demonstrated their application of up-to-date cooperative philosophy and management principles and techniques and who evidence an interest and willingness to participate in and contribute to study, research and innovation in the application of effective management concepts and techniques in rural electric system operations.

2. To contribute to the strengthening of overall rural electric system management by undertaking management research in areas of current concern and interest.

3. To develop new cooperative management concepts, approaches and techniques that will enable the management of rural electric systems to identify necessary resources and to provide the leadership required for meeting the needs of the people in an ever changing environment.

4. To develop the means whereby the beneficial results of the application of such management research and innovation can be interpreted and widely disseminated to rural electric systems and to encourage its effective application.

RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL

MEMBERSHIP REQUIREMENTS

The Rural Electric Management Development Council is established to provide a forum for those rural electric systems which have developed organizations built on the application of cooperative principles and modern management principles and techniques.

The Viewpoints and Objectives of the Council, attached hereto, identify more specifically the beliefs and purpose that all members of the Council subscribe to. The Council's primary purpose is one of research and innovation. Research and innovation which are within the parameters of the established Viewpoints and Objectives.

The Council does not intend to provide a forum for teaching basic cooperative philosophy and basic management principles and techniques. Adequate training opportunities for this are provided by NRECA and other organizations.

Thus, to assure that the limited time available for the conduct of research and the exchange and discussion of innovative ideas can be utilized to the maximum productive extent possible, it is necessary that those systems which wish to apply for membership in the Council, those which wish to sponsor systems for membership and those systems which are currently members of the Council be fully aware of the criteria for initial and continuing membership.

A. Initial Membership

Any rural electric system or association of rural electric systems may apply and be considered for membership in the Rural Electric Management Development Council.

The criteria for initial or continuing membership shall be adopted by the Council members at the Council's annual meeting. Any amendments or changes in this criteria shall be approved by the Council membership.

Representatives of NRECA, CFC, and REA, and current members of the Council will be encouraged to nominate rural electric systems or other associations that are believed to meet all of the criteria for membership.

The Membership Committee shall review all applications for membership and shall recommend those applicants who meet the established criteria. Approval for membership in the Council shall be by a majority vote of members present.

Prospective members may attend an annual meeting of the Council as non-paying guests the first year. If interested in joining the Council, the prospective member shall submit an application as prescribed in Section A.

Those applying for initial membership shall be requested to submit the following:

1. Evidence of having demonstrated their application of up-to-date cooperative philosophy and management principles and techniques. This evidence shall include the following:

   a. An Organization Profile - Documentation of the existence of an organization plan for the system. The documents required will be specified and should accompany the application.

   b. A System Profile - A recitation of the financial and operating characteristics of the system, including evidence of the existence of short and long range plans in specified areas.

   c. A Corporate Profile - An identification of programs and activities designed to involve the members and the public. Evidence of a recognition and pursuit of goals designed to enhance the consumer ownership and public responsibility of the system.

   d. A Growth and Development Profile - Evidence of specific programs and activities undertaken by the system to go beyond normal requirements for management, individual development and member involvement. This should include the identification of beneficial results therefrom.

2. A statement of a commitment to participate in and contribute to study, research and innovation in the application of management in rural electric system operations.

3. A statement of the system's willingness to pay the dues or other approved assessments of the Council, to attend and participate in Council meetings and to accept committee or program assignments.

4. An expression of willingness to share your individual management innovations with the Council for information and evaluation purposes.

B. Continuing Membership

All members of the Council shall be subject to continuing membership review at least every five years. Subject systems shall be notified at the Council's meeting preceding the review.

Applications for recertification as continuing members shall include:

1. A recap of attendance and involvement in the annual conference programs.

2. A recap of committee assignments and research activities.

3. Evidence of a continuing dedication to, and active support of, excellence in rural electric management and leadership.

The Membership Committee shall review the applications for recertification and present them to the Council for approval at the next annual meeting.

C. Honorary Membership

The following individuals, or their designated representatives, are considered as continuing honorary members of the Management Development Council. The Council encourages their active participation in all Council projects and activities.

Director of Management Services - NRECA
Borrowers' Operations Office - CFC
Director-Electric Borrower's Management Division - REA

D. Termination of Membership

Membership in the Council shall be terminated by:

1. A letter of withdrawal from a member system, or;

2. Upon investigation and recommendation by the Membership Committee, by a majority vote of the members present.

E. Council Dues

The annual dues shall be $300.00, payable prior to the annual meeting of the Council. Payment of dues shall permit the attendance of key management people from each member system.

FUNCTIONS

CHAIRMAN	To act as general coordinator of the activities of the Development Council and preside at all business meetings. To issue notice of all regular meetings of the membership or special meetings of the cabinet. (The cabinet to be composed of the chairman, vice chairman, treasurer, and all committee chairmen.) To represent the Development Council in relation to other organizations. Term of office to be three (3) years.
VICE CHAIRMAN	To assume all duties of the Chairman in the absence of or inability of that officer. Term of office to be three (3) years.

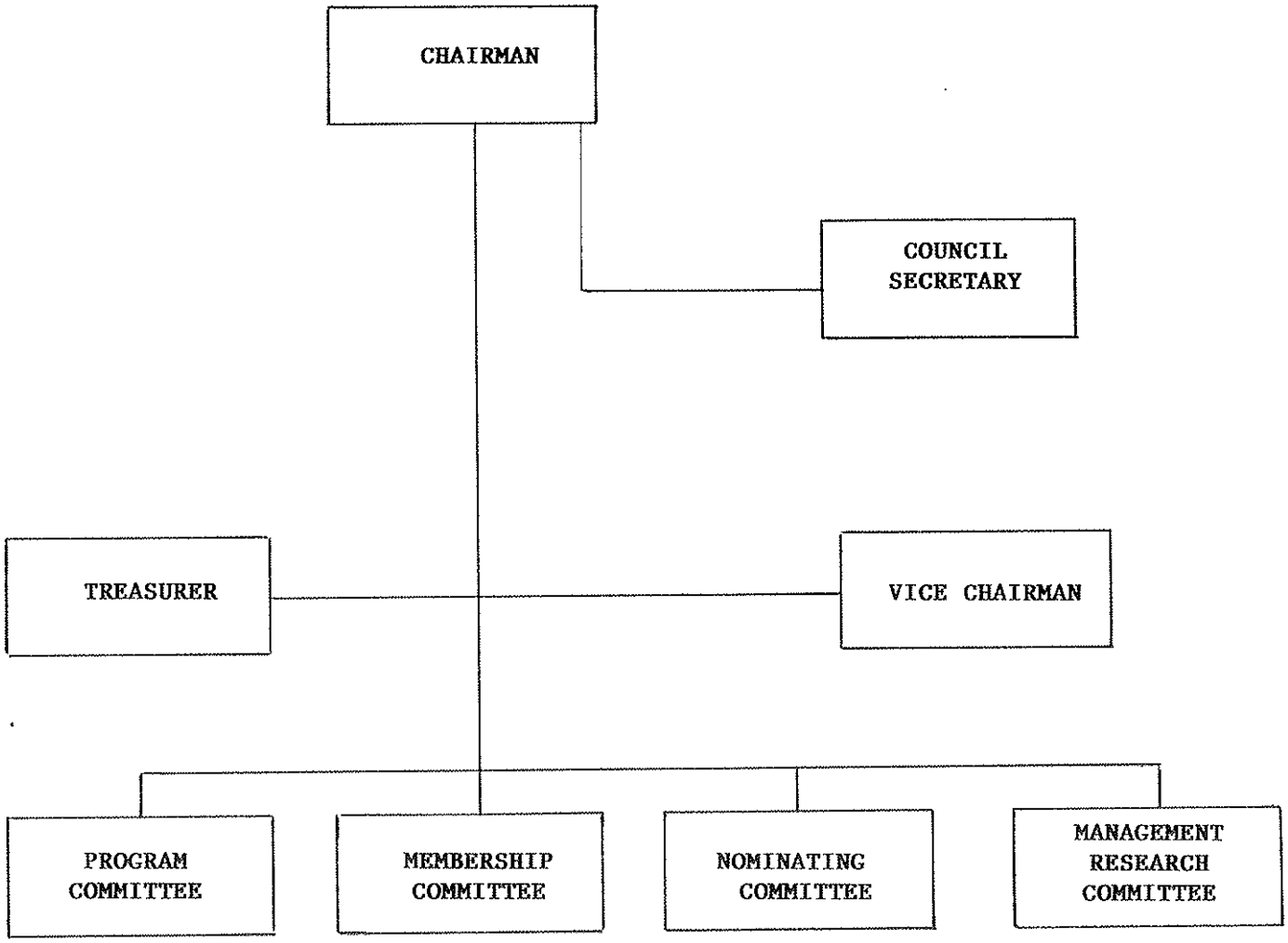
TREASURER	To collect all monies due the Development Council including regular membership dues and special assessments. To pay all bills submitted in proper form. To prepare an annual financial statement and forward to the Secretary for inclusion in the annual conference summary. Term of office to be three (3) years.
SECRETARY	To be appointed annually by the Chairman. To keep a record of all proceedings, prepare, publish, and distribute annual conference summary. (May be assisted by Management Services Department of NRECA.)

COMMITTEES

All committees to be composed of a chairman and three (3) members. The chairman to be nominated by the Nominating Committee. All committee chairmen and committee members to serve staggered terms of three (3) years each.

PROGRAM COMMITTEE	To determine program content and format for the annual conference and secure appropriate participation from the membership. To provide for subject continuity in programming when desirable. The committee chairman shall preside at all program sessions. To select the time and place for the annual council meeting.
MEMBERSHIP COMMITTEE	Under the established criteria, solicit and process applications of new members as well as administer the recertification of continuing members. Monitor the attendance and participation of member systems from year to year and recommend follow-up action as necessary to maintain a membership that is interested and active in Council affairs.
NOMINATING COMMITTEE	To nominate all officers and committee chairmen, as necessary for submission to the annual conference for election. All nominations shall be submitted in writing, certified by the chairman of the committee, and deposited with the conference secretary.
MANAGEMENT RESEARCH COMMITTEE	To identify research areas and initiate recommendations for projects to be carried out by the Council. To work with NRECA in identifying management areas in the rural electric program which need additional research and/or development and training programs and determine how the Council can assist in meeting needs in cooperation and coordination with NRECA.
COMMITTEE MEMBERS' EXPENSES	Reasonable out-of-pocket travel expenses of committee members attending committee meetings held solely for Council business, and not held in conjunction with other business meetings, shall be paid by the Council.

RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL



RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL
OFFICERS AND COMMITTEES FOR 1990

Officers

Chairman -	Harold Smith	Term expires 1990
Vice Chairman -	Wayne Johnson	Term expires 1990
Treasurer -	Allen Ritchie	Term expires 1992
Secretary -	Christine Beane	Appointed annually

Program Committee

Chairman -	Paul Bienvenue	Term expires 1992
	Dan Kessler	Term expires 1991
	Kim Colberg	Term expires 1990
	Dan Bryan	Term expires 1992
	Bob Roberts	Term expires 1992

Nominating Committee

Chairman -	Mike Gustafson	Term expires 1990
	Ron Knouse	Term expires 1991
	Derl Hinson	Term expires 1992
	Bob Bauman	Term expires 1992

Membership Committee

Chairman -	Layton Wheeler	Term expires 1990
	Jean Stansell	Term expires 1991
	Marlynn Cox	Term expires 1992
	Wayne Swann	Term expires 1992

Management Research Committee

Chairman -	Joe Satterfield	Term expires 1990
	Paul Weatherby	Term expires 1991
	Doyle Hines	Term expires 1991
	Jim Kiley	Term expires 1990
	Wayne Johnson	Term expires 1992

A. All committee members and officers are elected for three-year terms as noted.

b. Chairman of each standing committee named by the Nominating Committee and serves three years when elected, unless completing an unexpired term as a replacement.

Blue Ridge Electric Membership Corporation
Caller Service 112
Lenoir, North Carolina 28645
Christine W. Beane, Executive Assistant

Blue Ridge Mountain EMC
P. O. Box 9
Young Harris, Georgia 30582
Joe Satterfield, General Manager

Butler County REC
P. O. Box 98
Allison, Iowa 50602
Robert J. Bauman, General Manager

Cap Rock Electric Cooperative, Inc.
P. O. Box 700
Stanton, Texas 79782
David Pruitt, CEO and General Manager

Cass County Electric Co-op, Inc.
P. O. Box 8
Kindred, North Dakota 58051
Michael Gustafson, General Manager

Central Area Data Processing Corporation
P. O. Box 408
St. Peters, Missouri 63376
Dave Fricke, Executive Assistant to General Manager

Central Georgia Electric Membership Corporation
P. O. Box 309
Jackson, Georgia 30233
George L. Weaver, General Manager
Jean Stansill, Manager of Office Services

Cobb Electric Membership Corporation
P. O. Box 369
Marietta, Georgia 30061
Paul Weatherby, Chief Executive Officer

Delaware Electric Cooperative
P. O. Box 600
Greenwood, Delaware 19950
E. Paul Bienvenue, General Manager
Layton Wheeler, Manager, Member Services
Fay P. Shockley, Manager, Personnel

Eastern Iowa Light & Power Company
East Fifth and Sycamore Streets
Wilton, Iowa 52778
Melvin D. Nicholas, General Manager

REMDC Registration (Continued)

Flint Electric Membership Corporation
P. O. Box 308
Reynolds, Georgia 21076
Harold B. Smith, General Manager
Opal Wilder, Corporate Services Manager

Four County Electric Power Association
P. O. Box 351
Columbus, Mississippi 39703
Earl Weeks, General Manager
Marlynn Cox, Executive Assistant

Georgia Electric Membership Corporation
151 Ellis Street, N. E., Suite 422
Atlanta, Georgia 30303
Derl J. Hinson, Executive Vice President

Guadalupe Valley Electric Cooperative, Inc.
P. O. Box 118
Gonzales, Texas 78629
Milton Doyle Hines, General Manager

Hancock-Wood Electric Co-op, Inc.
P. O. Box 188
North Baltimore, Ohio 45872
Steve Fausnaugh, Director, Administrative Services

Iowa Lakes Electric Cooperative
1724 Central Avenue
Estherville, Iowa 51334
Bruce Bosworth, General Manager

Johnson County Electric Cooperative Association
P. O. Box 16
Cleburne, Texas 76031
Hollis E. (Gene) Joslin, Manager

Lee County Electric Cooperative, Inc.
P. O. Box 3455
North Fort Myers, Florida 33918
James D. Sherfey, General Manager

Linn County REC
P. O. Box 69
Marion, Iowa 52302
Kim Colberg, General Manager
Phyllis Barber, Staff Assistant

Maquoketa Valley Rural Electric Co-op
P. O. Box 351
Anamosa, Iowa 52205
Dorothy Postel, General Manager
Patti Marks, Manager's Secretary

REMDC Registration (Continued)

Morgan County REMC
300 Morton Avenue
Martinsville, Indiana 46151
Kevin D. Sump, General Manager

Northeastern REMC
P. O. Box 171
Columbia, Indiana 46725
William W. James, Jr., President & General Manager

Palmetto Electric Co-op, Inc.
P. O. Box 21239
Hilton Head, South Carolina 29925
G. Thomas Upshaw, General Manager

Shenandoah Valley Electric Cooperative
P. O. Box 8
Dayton, Virginia 22821
William R. (Dick) Fleming, General Manager
Allen R. Ritchie, Manager, Administrative Services

Sioux Valley Empire Electric Association
P. O. Box 216
Colman, South Dakota 57017
Jim Kiley, General Manager

Southeast Iowa Electric Association
P. O. Box 440
Mt. Pleasant, Iowa 52641
Larry E. Hopkey, General Manager

Southern Nebraska RPPD
P. O. Box 1687
Grand Island, Nebraska 68802
Charles J. Hoke, General Manager

Washington Electric Cooperative
P. O. Box 8
East Montpelier, Vermont 05651
William E. Smith, General Manager

Wells Rural Electric Cooperative
P. O. Box 365
Wells, Nevada 89835
Daniel L. Kessler, Jr., General Manager
Dianne Griswold, Secretary
Warren Linnell, Manager, Operations & Engineering
Clay Fitch, Manager, Administration & Finance
Thad Ballard, Engineering Technician

Guest Registration

Jim Boatman, Director, Program & Planning Analysis
National Rural Utilities CFC
1115 30th Street, NW
Washington, D. C. 20007

REMDC Registration (Continued)

Bob Bergland, Executive Vice President & General Manager
Bob Kabat, Director, Management Services
Dr. Martin Lowery, Manager, Consulting & Training
Dr. Greg Boudreaux, Manager, Board & Management Development
National Rural Electric Cooperative Association
1800 Massachusetts Avenue, NW
Washington, D. C. 20036

Wayne Johnson
415 Southern Hills Drive
Borden, Indiana 47106

Frank W. Bacon, Associate Professor
Southside Virginia Community College
Route 1, Box 22313
Kenbridge, Virginia 23944

Dr. Scott R. Herriott
University of Iowa
P.O. Box 1931
Fairfield, Iowa 52556

Connie M. Shireman, General Manager
Jo-Carroll Electric Co-op, Inc.
P. O. Box 390
Elizabeth, Illinois 61028

W. Douglas Bechtel, General Manager
Orcas Power and Light Company
P. O. Box 187
Eastsound, Washington 98245

Noble Ray Stallons, General Manager
Utilities District of Western Indiana REMC
P. O. Box 427
Bloomfield, Indiana 47424

John R. Henning
POWER Engineers
P. O. Box 1066
Hailey, Idaho 83333

RURAL ELECTRIC MANAGEMENT

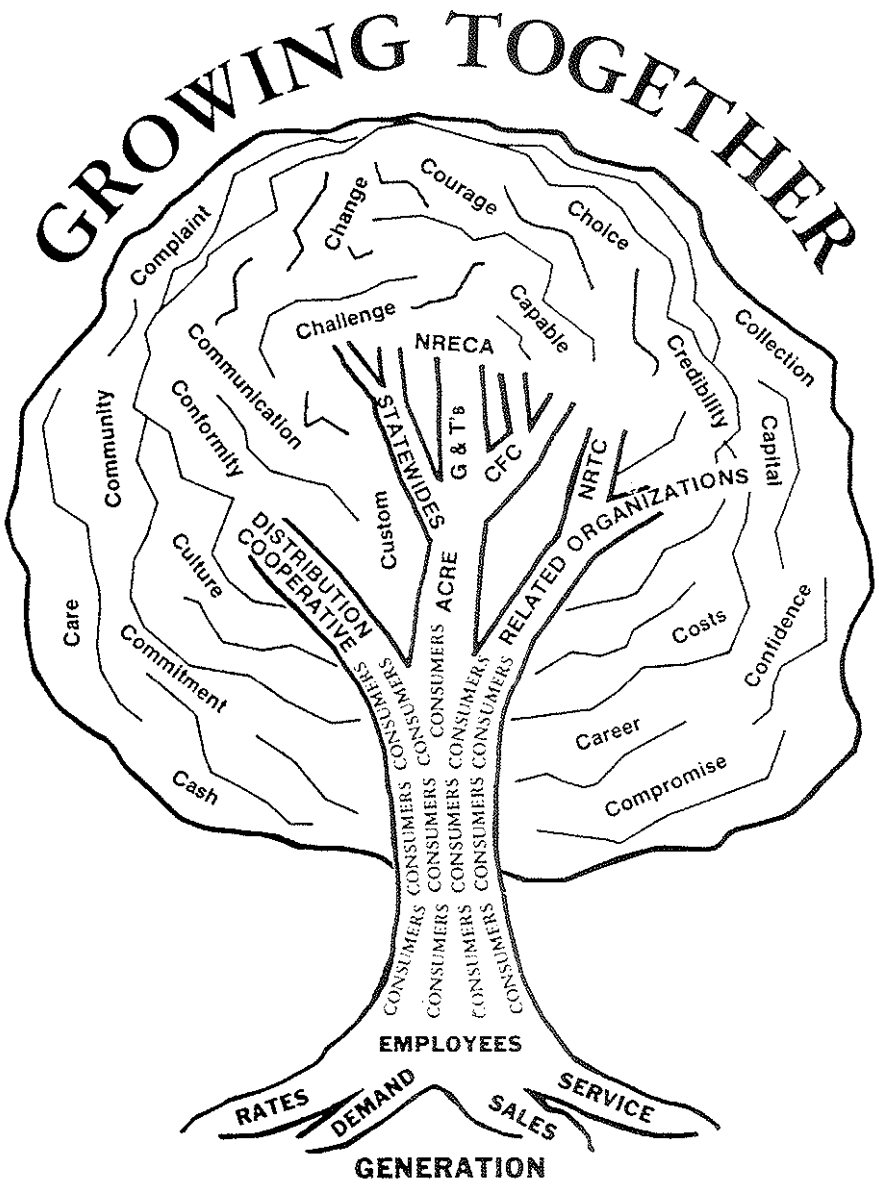
DEVELOPMENT COUNCIL 1990 MEMBERS

	Recertification Date
A. Daniel Murray, General Manager Adams Electric Cooperative, Inc. 153 North Stratton Street Gettysburg, Pennsylvania 17325	1993
Douglas W. Johnson, Executive Vice President Blue Ridge Electric Membership Corporation Caller Service 112 Lenoir, North Carolina 28645	1993
Joe Satterfield, General Manager Blue Ridge Mountain EMC P. O. Box 9 Young Harris, Georgia 30582	1992
David J. Batten, General Manager Brunswick EMC P. O. Box 826 Shallotte, North carolina 28459	1992
Robert J. Bauman, General Manager Butler County REC P. O. Box 98 Allison, Iowa 50602	1993
David Pruitt, General Manager Cap Rock Electric Cooperative, Inc. P. O. Box 700 Stanton, Texas 79782	1994
Michael D. Gustafson, General Manager Cass County Electric Cooperative, Inc. P. O. Box 8 Kindred, North Dakota 58051	1993
Gary J. Hobson, General Manager Central Area Data Processing Cooperative P. O. Box 408 St. Peters, Missouri 63376	1995
George L. Weaver, President Central Georgia EMC P. O. Box 309 Jackson, Georgia 30233	1992
Donald J. VanDeest, General Manager Central Wisconsin Electric Co-op P. O. Box 255 Iola, Wisconsin 54945	1995

	Recertification Date
Bob Mackey, Acting General Manager Clark County REMC P. O. Box L Sellersburg, Indiana 47172	1993
Paul E. Weatherby, President Cobb EMC P. O. Box 369 Marietta, Georgia 30061	1994
H. Wayne Wilkins, General Manager Davidson EMC P. O. Box 948 Lexington, North Carolina 27293	1995
E. Paul Bienvenue, General Manager Delaware Electric Cooperative, Inc. P. O. Box 600 Greenwood, Delaware 19950	1995
Melvin D. Nicholas, General Manager Eastern Iowa Light & Power Cooperative E. Fifth & Sycamore Streets Wilton, Iowa 52778	1995
Dan Bryan, General Manager Farmers' Electric Cooperative, Inc. P. O. Box 680 Chillicothe, Missouri 64601	1994
Harold M. Smith, General Manager Flint EMC P. O. Box 308 Reynolds, Georgia 31076	1995
Edward E. Brown, Jr., General Manager Four County EMC P. O. Box 667 Burgaw, North Carolina 28425	1995
Earl W. Weeks, General Manager Four County Electric Power Association P. O. Box 351 Columbus, Mississippi 39703	1991
Derl J. Hinson, Executive Vice President Georgia EMC (statewide) 151 Ellis Street, N. E., Suite 422 Atlanta, Georgia 30303	1995
Milton Doyle Hines, General Manager Guadalupe Valley Electric Cooperative, Inc. P. O. Box 118 Gonzales, Texas 78629	1994

	Recertification Date
John A. Cheney, General Manager Hancock-Wood Electric Cooperative, Inc. P. O. Box 188 North Baltimore, Ohio 45872	1994
Bruce Bosworth, General Manager Iowa Lakes Electric Cooperative 1724 Central Avenue Estherville, Iowa 51334	1995
Randal Pugh, President/CEO Jackson EMC P. O. Box 38 Jefferson, Georgia 30549	1994
Hollis E. (Gene) Joslin, General Manager Johnson County Electric Cooperative Association P. O. Box 16 Cleburne, Texas 76033	1993
James D. Sherfey, General Manager Lee County Electric Cooperative, Inc. P. O. Box 3455 North Fort Myers, Florida 33918	1991
Kim R. Colberg, General Manager Linn County RECA P. O. Box 69 Marion, Iowa 52302	1994
Dorothy A. Postel, General Manager Maquoketa Valley REC P. O. Box 370 Anamosa, Iowa 52205	1993
Kevin D. Sump, General Manager Morgan County REMC 300 Morton Avenue Martinsville, Indiana 46151	1993
Lyle D. Brigle, Manager North Western Electric Co-op, Inc. P. O. Box 391 Bryan, Ohio 43506	1995
William W. James, Jr., President/General Manager Northeastern REMC P. O. Box 171 Columbia City, Indiana 46725	1993
G. Thomas Upshaw, General Manager Palmetto Electric Co-op, Inc. P. O. Box 21239 Hilton Head, South Carolina 29925	1995

	Recertification Date
Robert L. Roberts, General Manager Pioneer REC, Inc. P. O. Box 604 Piqua, Ohio 45356	1993
William R. (Dick) Fleming, General Manager Shenandoah Valley Electric Cooperative, Inc. P. O. Box 8 Dayton, Virginia 22821	1994
James Kiley, General Manager Sioux Valley Empire Electric Association, Inc. P. O. Box 216 Colman, South Dakota 57017	1993
Wayne Swann, General Manager/Executive Vice President Southern Maryland Electric Cooperative, Inc. P. O. Box 1937 Hughesville, Maryland 20637	1994
Larry E. Hopkey, General Manager Southeast Iowa Cooperative Electric Association P. O. Box 440 Mt. Pleasant, Iowa 52641	1995
Charles J. Hoke, General Manager Southern Nebraska RPPD P. O. Box 1687 Grand Island, Nebraska 68802	1995
John C. Anderson, Executive Vice President Southside Electric Cooperative P. O. Box 7 Crewe, Virginia 23930	1992
Noble Ray Stallons, General Manager Utilities District of Western Indiana REMC P. O. Box 427 Bloomfield, Indiana 47424	1995
William E. Smith, General Manager Washington Electric Cooperative, Inc. P. O. Box 8 East Montpelier, Vermont 05651	1994
Daniel L. Kessler, Jr., General Manager Wells REC P. O. Box 365 Wells, Nevada 89835	1992



THRU COOPERATION

THE RURAL ELECTRIC MANAGEMENT

Development Council

Decade of Decision

MAY 21-23, 1990

Caesars Tahoe Resort

Lake Tahoe, Nevada

Rural Electric Management Development Council

OFFICERS AND COMMITTEES 1990

OFFICERS

Chairman — Harold Smith
Vice Chairman — Wayne Johnson
Treasurer — Allen Ritchie
Secretary — Christine Beane

COMMITTEES

Program

Chairman – Paul Bienvenue
Dan Kessler
Kim Colberg
Dan Bryan
Bob Roberts

Membership

Chairman – Layton Wheeler
Jean Stansell
Marlynn Cox
Wayne Swann

Nominating

Chairman – Mike Gustafson
Ron Knouse
Derl Hinson
Bob Bauman

Management Research

Chairman – Joe Satterfield
Paul Weatherby
Doyle Hines
Jim Kiley
Wayne Johnson

NOTE:
Committee members and officers are elected for three-year terms.

The Chairman of each standing committee is named by the Nominating Committee and serves three years when elected, unless completing an unexpired term as a replacement.

Membership

COLORADO

Yampa Valley Electric Association, Inc.

DELAWARE

Delaware Electric Cooperative, Inc.

FLORIDA

Lee County Electric Cooperative, Inc.

GEORGIA

Blue Ridge Mountain EMC
Central Georgia EMC
Cobb EMC
Flint EMC
Jackson EMC

INDIANA

Clark County REMC
Morgan County REMC
Northeastern REMC

IOWA

Butler County REC
Linn County RECA
Maquoketa Valley REC
Southeast Iowa Cooperative Electric Assoc.

MARYLAND

Southern Maryland Electric Cooperative, Inc.

MISSISSIPPI

Four County Electric Power Association

MISSOURI

Central Area Data Processing Cooperative
Farmers' Electric Cooperative, Inc.

NEVADA

Wells REC

NORTH CAROLINA

Blue Ridge EMC
Brunswick EMC
Davidson EMC
Four County EMC

NORTH DAKOTA

Cass County Electric Cooperative, Inc.

OHIO

Hancock-Wood Electric Cooperative, Inc.
Pioneer REC, Inc.

PENNSYLVANIA

Adams Electric Cooperative, Inc.

SOUTH DAKOTA

Sioux Valley Empire Electric Assoc., Inc.

TEXAS

Cap Rock Electric Cooperative, Inc.
Guadalupe Valley Electric Cooperative, Inc.
Johnson County Electric Cooperative Assoc.

VERMONT

Washington Electric Cooperative, Inc.

VIRGINIA

Shenandoah Valley Electric Cooperative, Inc.
Southside Electric Cooperative

OVERVIEW OF THE

STRATEGIC PLANNING PROCESS

(Dr. Greg Boudreaux)

MANAGEMENT SERVICES DEPARTMENT
NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION
1800 MASSACHUSETTS AVENUE, N.W.
WASHINGTON, D.C. 20036

(202) 857-9500

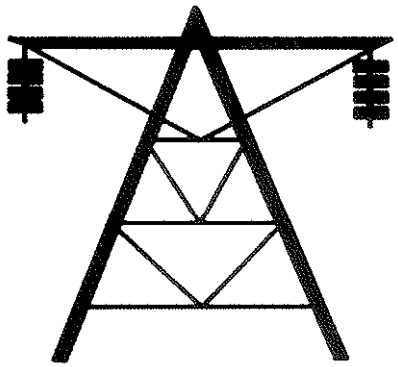
STRATEGIC PLANNING IS THE PROCESS OF

FOCUSING THE MAJOR ISSUES FACED BY THE COOPERATIVE

INTO A MANAGEABLE SET OF PRIORITIES.

THE PLANNING PROCESS ALWAYS BEGINS BY
REVIEWING THE EXTERNAL OPPORTUNITIES AND THREATS
TO BE FACED IN THE NEXT 5-8 YEARS.

SITUATION ASSESSMENT



Regulatory Trends

Excess Capacity

Customer Choice

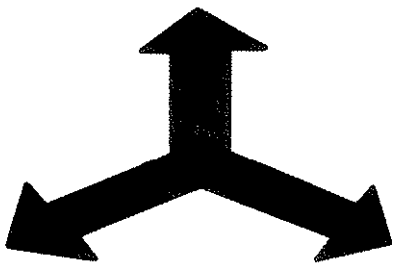
Financial Conditions

ONCE THE EXTERNAL ENVIRONMENT HAS BEEN ANALYZED, KEY ISSUES NEED TO BE IDENTIFIED. A KEY ISSUE IS ONE WHICH WILL HAVE A MAJOR IMPACT ON THE COOPERATIVE AND ONE OVER WHICH THERE IS SOME CONTROL.

KEY ISSUES LEAD TO THE QUESTION: WHAT SHOULD OUR BUSINESS LOOK LIKE IN THE COMING YEARS IF WE SUCCESSFULLY ADDRESS THE ISSUES WE FACE? WHAT IS OUR MISSION AND WHAT ARE OUR LONG-RANGE GOALS?

SUCCESSFUL IDENTIFICATION OF THE LONG-RANGE GOALS OF THE COOPERATIVE ESTABLISHES THE STRATEGIC FRAMEWORK.

STRATEGIC FRAMEWORK



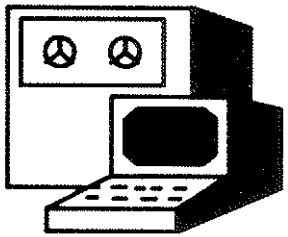
Driving Force

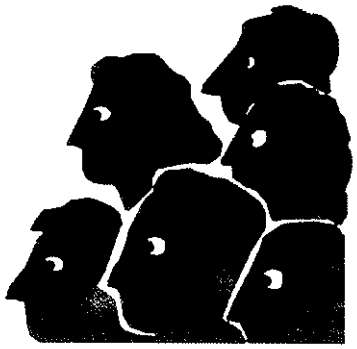
Mission

Major Objectives

WITH THE STRATEGIC FRAMEWORK IN PLACE, THE BOARD OF DIRECTORS CAN THEN DELEGATE THE RESPONSIBILITY OF DEVELOPING DETAILED PLANS OF ACTION TO THE MANAGER AND STAFF.

MANAGEMENT ACTION AGENDA





Human Resources

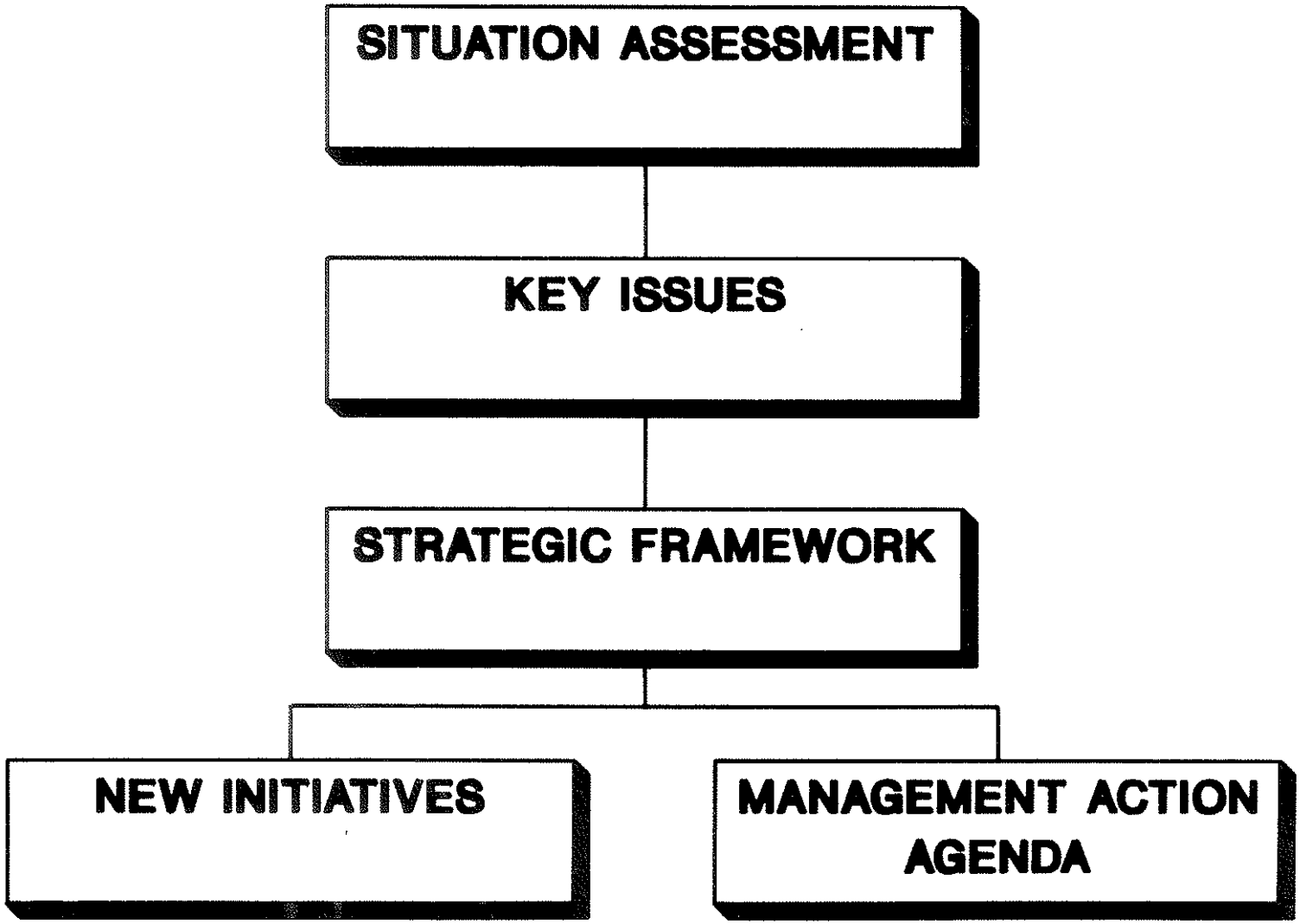
Tracking Systems

Structure

THE OVERALL PROCESS CAN BE BE ACHIEVED THROUGH A BOARD RETREAT TO IDENTIFY FUTURE DIRECTIONS AND PRIORITIES FOLLOWED BY MANAGEMENT AND STAFF DEVELOPING THE DETAILED PLAN FOR BOARD APPROVAL.

THE ENTIRE PROCESS SHOULD THEN BE LINKED TO THE WORKPLAN AND BUDGET PROCESS SO THAT THE HIGHEST PRIORITIES HAVE THE PROPER LEVEL OF RESOURCES APPLIED TO THEM.

STRATEGIC PLANNING PROCESS



Sources of Efficiency and Economies of Scale in Electric Distribution Cooperatives

Scott R. Herriott, Ph.D.*
PO Box 1931
Fairfield, Iowa 52556

Abstract

In a statistical study of 880 distribution cooperatives from around the U.S., I find that the average distribution cost per customer is lowest for systems serving about 20,000 - 30,000 consumers. Using a mathematical funtion that estimates the distribution costs arising from the different types of consumers served, the density of consumers, and the amount of energy drawn, I predict that if small systems were consolidated into efficient-scale entities, then the savings would amount, on average, to $37 per consumer per year.

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Introduction

The rural electrification program will be faced with many financial challenges in the 1990s as the attention of consumers and regulatory agencies is drawn to costs and efficiency in the electric power industry as a whole. Many utilities, especially those saddled with high-cost nuclear plants, must contend with concerned citizens, unsympathetic state regulatory boards, and municipal purchasers that would consider taking their electric power business elsewhere if given the chance. The Federal Energy Regulatory Commission's initiatives toward deregulation of bulk power generation and transmission may even give them that chance if the transmission grid comes to be operated as a common carrier.[1] Moreover, the power shortages that are predicted for the Northeast in the early 1990s and other parts of the country in 1994-96 will only intensify consumer dissatisfaction if the shortages start to drive prices up.[2]

Anticipating such changes in the environment of electric utilities, the investment banking firm of Shearson Lehman Hutton has called attention to the need for consolidation among independently-owned utilities.[3] Research on similar questions for the electric distribution industry has appeared in a pair of studies recently published in*Management Quarterly.*[4]

Like those published earlier in *Management Quarterly,* this study seeks to answer three questions. Are there economies of scale in electric power distribution? If so, what is the size of an efficient-scale distribution cooperative? And last, how much would be the savings per consumer if smaller cooperatives were organized into efficient-scale systems?

The direct costs of distribution comprise only about 25% of the delivered cost of electric power.[5] The remaining 75% is attributable to the costs of purchased power (generation and high-voltage transmission), interest, and taxes. Nevertheless, the direct costs of distribution can be affected directly by the management of rural electric distribution cooperatives and are therefore worthy of study. Clearly, it will be important for future research to analyze economies of scale in power generation and transmission and thereby to assess the potential of G&T cooperatives to reduce the cost of delivered power.

Our analysis begins with a discussion of the different approaches that can be taken to cost analysis, focussing on the technique of statistical cost analysis which is used in this study. Following that, I present in more detail the results of the economic analysis of scale

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[1] FERC initiatives on deregulation

[2] U. S. Department of Energy. 1987. *Energy Security: Report to the President.* DOE S/0057

[3] Edward Tirello, Jr. and Michael Worms. *Electric Utilities: The Case for Consolidation, Part 1.* Shearson Lehman Hutton. March 18, 1988.

[4] See Donald Macke and Kandra Hahn. "A Deeper Look at Economies of Scale and the Question of Merger: A Study of Nebraska's Rural Electric Systems." *Management Quarterly.* Winter 1989-1990, pp. 25-38. Also James Boatman's article in the Spring 1990.issue.

[5] U.S. Department of Agriculture, Rural Electrification Administration.*1988 Statistical Report, Rural Electric Borrowers.* p. ix.

economies in electric power distribution and the predicted effect of consolidation among distribution cooperatives into efficient-scale entities.

Statistical Cost Analysis

There are fundamentally two approaches to the economic analysis of a production or operations system. One is *engineering analysis* by which the analyst models in detail the actual operations of a production system to derive the cost of output as a function of input usage and input prices. As applied to distribution coops, this approach would map out in detail the number and types of personnel needed, the amount and location of distribution lines, substations and transformers, buildings, and equipment needed to serve a particular system's power requirements. This approach is excellent for estimating rather precisely the savings that would accrue to the merger of two specific cooperatives.

The second approach to economic analysis, and the one used in this study, is *statistical cost estimation.* This methods seeks to identify the general trends in system costs across a large number of distribution cooperatives. Using the statistical technique of regression, we estimate the form of a mathematical relationship between the service requirements of an electric distribution cooperative and various categories of cost. Such a relationship will hold, on average, across a large number of systems, but it cannot be expected to accurately predict the cost of any given, specific, system. Moreover, the relationship between cost and system requirements, discovered through regression analysis, does not describe the best (i.e. least-cost) practice available.[6] It merely estimates the average across all the systems in the data set.

Power System Service Requirements

The service requirements of an electric cooperative can be defined along several dimensions (Table 1). Clearly, the number of members affects the total cost of operations, but the number of different types of members (residential, commercial, etc.) can also create differences in cost across systems. So, too, does the density of population in the coop, expressed in the number of miles of line needed to serve the members. The amount of energy demanded by each category of consumer can also affect certain components of system cost. These types of system requirement will be studied in the analysis below.

Due to the limitations of publicly available data, the present analysis has to omit several other features of a coop can affect its costs. The quality of distribution service is often measured as the number of outage-hours per consumer per year and is certainly costly to minimize. The terrain of a system can increase its costs if the region is mountainous or rocky. Variations in weather across the country make it more expensive to maintain a system, as ice storms or the need for underground cable can increase a coop's costs. Other services that coops might provide, such as energy-use counseling or load management, can also affect their costs. In addition, variations in labor costs by region or by unionization introduce differences in the cost of distribution among cooperatives across the nation. The lack of public data on these variables limits the accuracy of the predicted cost to some degree, but it will be seen below that the customer, mileage, and energy requirements of a system predict about 80% of the variance in costs across distribution coops in the U.S.

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[6]The statistical technique for identifying the lowest feasible cost of serving a particular system's requirement is Data Envelopement Analysis (DEA), based on linear programming. It was used in the late 1980's by the Texas Public Utilities Commission to target the less efficient rural electric cooperatives for decennial audits, but the technique has not yet come into common practice.

Table 1
Service Requirements that Affect the Cost of Distribution

Number of consumers, of various types
Miles of line needed to serve all consumers
Amount of energy consumed
Quality of power distribution
Terrain (mountain vs. plains, rock vs. soil)
Weather (frequency of ice storms)
Other services provided

(Note: Roman type identifies the variables analyzed in this study. *Italic type* identifies the variables omitted in this analysis)

Categories of Distribution Cost

Six categories of cost are studied individually. These include the cost of Net Plant (i.e. the total value of the physical assets of the distribution coop, after allowance for depreciation) and five categories of expense:

Distribution operations and maintenance (28.5% of non-power costs)
Consumer accounts expense (11.6%)
Customer service and sales expenses (3%)
Administrative and general expense (22.3%)
Depreciation expense (24%)

Two categories of cost will be omitted from consideration. These are Interest Expense and Tax Expense. Interest expense depends on the amount of a coop's debt, which in turn depends on the coop's past decisions about pricing and patronage capital accumulation. While there may be efficiencies in cash management and debt financing for larger coops, any variation in interest payments among coops is confounded by their variations in policies toward patronage capital accumulation. Similarly, tax expenses depend more on states' laws than on Kirchoff's laws, so that category is best left to analysis on a case-by-case basis.

Once a mathematical relationship between service requirements and cost has been estimated, it can be used to predict the expenses that a *typical* distribution coop would incur for a given number of customers, miles of line, and energy demand. The statistical analyses described below were conducted on a set of 880 coops in the U.S. that were involved in distribution only and whose data were available in machine-readable form from the REA.

The Efficient Scale of a Distribution Coop

The *scale* of a distribution system refers to its size. As we saw above, there is not just one measure of the size of a system. The number of customers is a frequently used measure, as is energy consumption, but we know from engineering studies that the cost of distribution can depend on other factors such as the number of customers of various types or the sparsity of population in the region served. Thus, to study the economies or diseconomies of scale we have to make some simplifying assumptions to get a single measure of size.

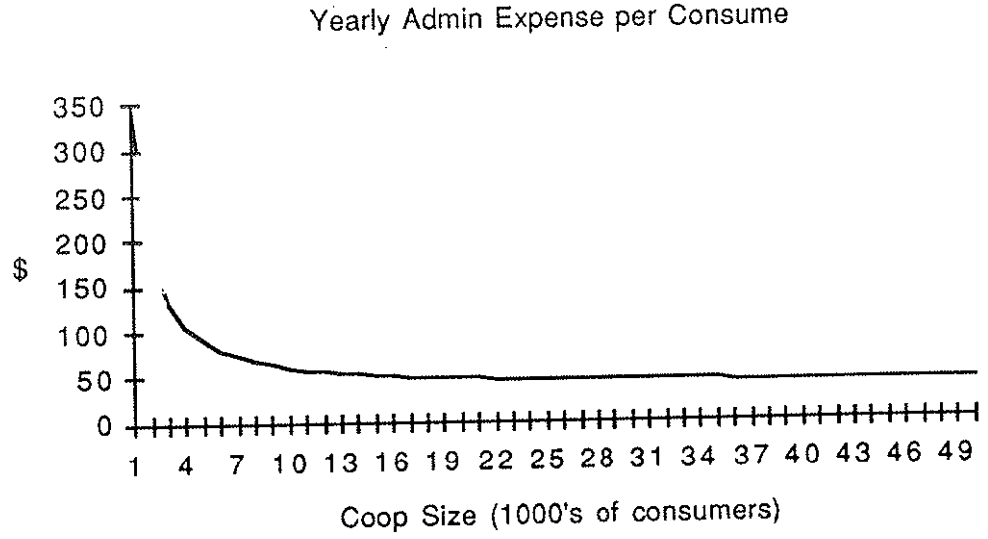
According to the economic definition, *economies of scale* are said to exist over a range of sizes where the average cost is *declining* as size increases. For most types of business operations, average cost is very high at low levels of size due to the fixed costs of operation. Average cost per unit of output falls over some range of size as the fixed costs are spread over more and more units of output. Then average cost tends to rise at some point as congestion effects or bureaucratic inefficiencies set in. The *efficient scale* of a business is the size at which the average cost is lowest, and we can speak of the *efficient range* as the size range over which average cost is within 5% of its minimum level.

I estimated the effects of scale in electric power distribution using two measures of size, the total number of customers of all types and the total MWH energy sales to all types of customers. The statistical technique used was polynomial regression. It permits us to see whether the average cost of distribution is decreasing or increasing at various sizes of coop.

A better measure of size is the number of consumers. With this measure, an efficient scale was found for five of the six categories of cost. The complete regression results from which the cost function was estimated may be obtained from the author upon request. In Table 2 below, I report the number of customers that minimized the average cost (per consumer) in each category.

Cost category	R^2	Efficient Scale	Efficient Range
Net Plant	81%	22,200 cust.	13,000 - 40,000
Distrib. O&M	83%	too high to tell	about 20,000 and up
Consumer Accounts	88%	17,200	8,000 - 30,000
Cust. Service & Sales	42%	23,500	17,000 - 33,000
Admin & General	73%	43,300	24,000 - 75,000+
Depreciation	82%	37,300	16,000 - 75,000+

The column labeled R^2 indicates the degree of confidence one can have in the parameters of the cost function estimated from the data, i.e. the proportion of variance in the cost category explained by the estimated cost function. A graph of the average Administrative Expense per consumer is given below.



This statistical estimation used a data base of coops having between 5,000 and 100,000 residential customers, but most of the coops in that group are quite small. Only about 100

coops exceed 25,000 consumers, and only a bit over 200 coops were in the size range of 10-25 thousand. Thus, one has to be careful in extrapolating beyond the size ranges in which data were available. Still, it is evident that a coop with about 20-30 thousand members could be achieving most of the economies of scale available in distribution.

Economies of Scale in Distribution Systems

There are about 220 distribution cooperatives with less than 4000 consumers, and some 250 more with between 4000 and 9000 consumers.[7] Thus, it should be possible for the smaller coops to save money by consolidating into efficient-scale systems. To estimate the cost savings that would result from such consolidations, we need to have a reliable estimate of the functional relationship between a distribution system's service requirements and its costs.

The polynomial cost functions that were used in the previous section to estimate the efficient scale of electric power distribution had fairly good predictive ability, as seen in the percent of variance explained. Still, the polynomial function requires the analyst to come up with one single dimension of size. There are two other techniques of statistical cost estimation that can estimate costs using simultaneously several descriptors of the system's service requirements.

In *linear* cost estimation we can try to predict the cost of a system given knowledge of the number of consumers of various types—residential, small commercial, large commercial, irrigation, other, and resale. These consumer types, which were pooled together in the earlier estimation of "size," might actually induce different incremental costs on a distribution system.

The disadvantage of linear cost estimation is that it cannot represent the costs induced by other system requirements, such as line mileage or energy consumption, whose effects may differ according to the number of consumers served. *Logarithmic* cost estimation overcomes that disadvantage. It can represent simultaneously the effects of the number of consumers, miles of line, and total energy sold on the costs of a distribution system. It does so, however, at the cost of having to use a single measure for each of these three variables. In particular, the number of consumers must be an aggregate figure, losing any distinction among the classes of customers that can be disaggregated in the linear costing technique.

A cost function was estimated using both the linear and the logarithmic techniques. A final estimate of the cost of a distribution system was taken to be the average of these two on the assumption that this average could incorporate to some degree the disaggregated information in the linear estimate and the interacting variables used in the logarithmic form.

The Cost Savings from Consolidation to Efficient-Scale Distribution Systems

To estimate the effects of consolidation, I first grouped distribution cooperatives into units having between 20 and 30 thousand consumers, keeping each group within state and G&T

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[7]U.S. Department of Agriculture, Rural Electrification Administration. *1988 Statistical Report, Rural Electric Borrowers*. p. xxvi.

boundaries (see the maps in Appendix A of this report). I then arrayed on a spreadsheet the individual data for each member in the group of distribution cooperatives. When data such as the number of customers of various types, number of miles of line, energy sales, etc. were summed across all members of the group, I could estimate each cost category for the combined system using the linear and logarithmic cost functions derived from the regression analysis above. The sum of these estimated costs is then an estimate of the total distribution cost (excepting taxes, interest, and purchased power) for the group. The difference between the present total cost of the group (in these categories) and the estimated cost can then be calculated as a cost savings per consumer.

This analysis has been performed for distribution cooperatives in Iowa, Kansas, and Indiana, Nebraska, Wisconsin, Illinois, and Minnesota. A summary of the estimated savings per customer for each group, for each expense class and in total, are detailed in Appendix B.

The data show that the one-time benefit from a reduction in Net Plant due to consolidation would be negligible (actually a $19 increase per customer which is essentially zero given the limitations of the statistical model). More informative is the average benefit from the reduction in the annual expense categories across all the seven states in this sudy. It indicates a savings of $37 per customer *per year.*, driven primarily by the reduction in administrative expenses.

These figures are illustrative of the potential for cost savings. It should be stressed that these savings are statistical estimates using data from cooperatives all across the U.S. They are only moderately accurate, at best, in specific applications. They may be inaccurate in some cases, as in the Indiana groups where the models predict negative savings (i.e. increased costs due to consolidation) in some expense categories (but never in administrative expense). This may happen either because the Indiana coops have a lower wage rate, lower unionization rate, or greater overall efficiency than the U.S. average. Still, the overall trends these models suggest are quite reliable, and the estimated average $37 reduction in cost per customer per year is probably not far from the mark.

Conclusions

This study shows that there is a negligible one-time savings associated with the reduction in Net Plant for consolidated systems, but that the on-going savings from a reduction in annual expenses averages about $37 per consumer per year across the seven states examined here. This savings is what might be expected in the long run, after a consolidation of smaller systems has settled into routine operation. The study does not address the rather difficult practical issue of getting distribution cooperatives to agree to merge nor the administrative task of identifying and implementing the specific opportunities for savings once a larger scale is reached. Real people are involved in any merger, and their expectations and careers must be considered in the implementation of a coop's long-run strategy.

Some participants in the REA program might also argue that a purely statistical study cannot fathom the value of member involvement *per se* which is known to be greater in smaller coops. As a member of a large coop, a consumer might simply regard the distribution firm as "the power company" and lose identification with the origins and history of the cooperative.

On the other hand, a larger coop may be able to provide more and better services than can a small coop. This statistical study assumed that electricity is electricity is electricity. No account was made of the variety or importance of the service provided. If these benefits

were accounted for, they would suggest that consolidation has a greater value than the $37 per consumer per year found in this study.

Clearly, there are many factors involved in an assessment of the value of any movement toward an efficient-scale operation. This study has quantified some of those factors. It is up to each rural electric manager to use their own judgement to incorporate the other, less quantifiable factors.

Appendix A

Efficient-Scale Groups of Electric Distribution Cooperatives

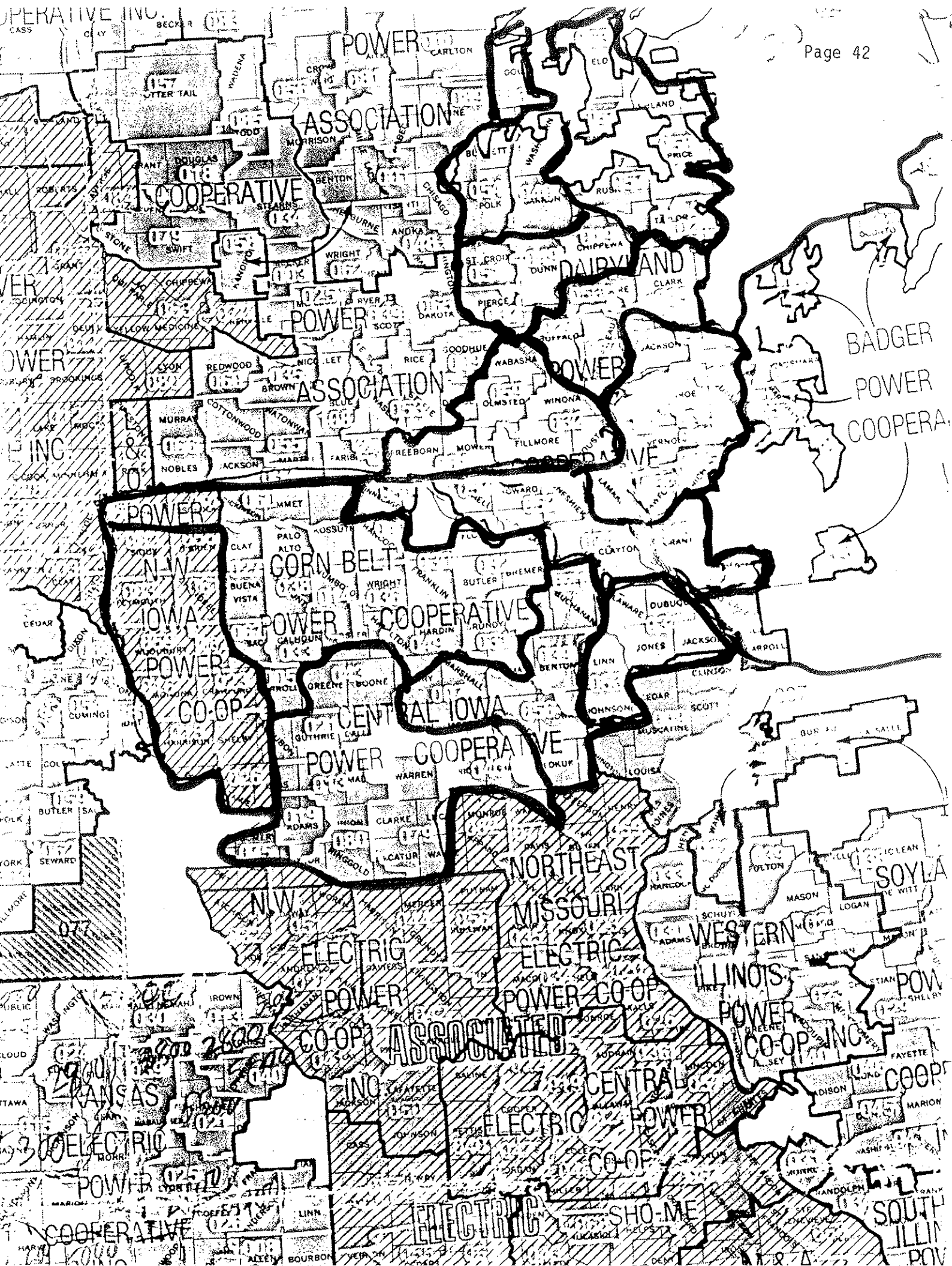
Iowa and Wisconsin

Illinois

Indiana

Nebraska and Kansas

Minnesota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NORTHEAST
MISSOURI
ELECTRIC
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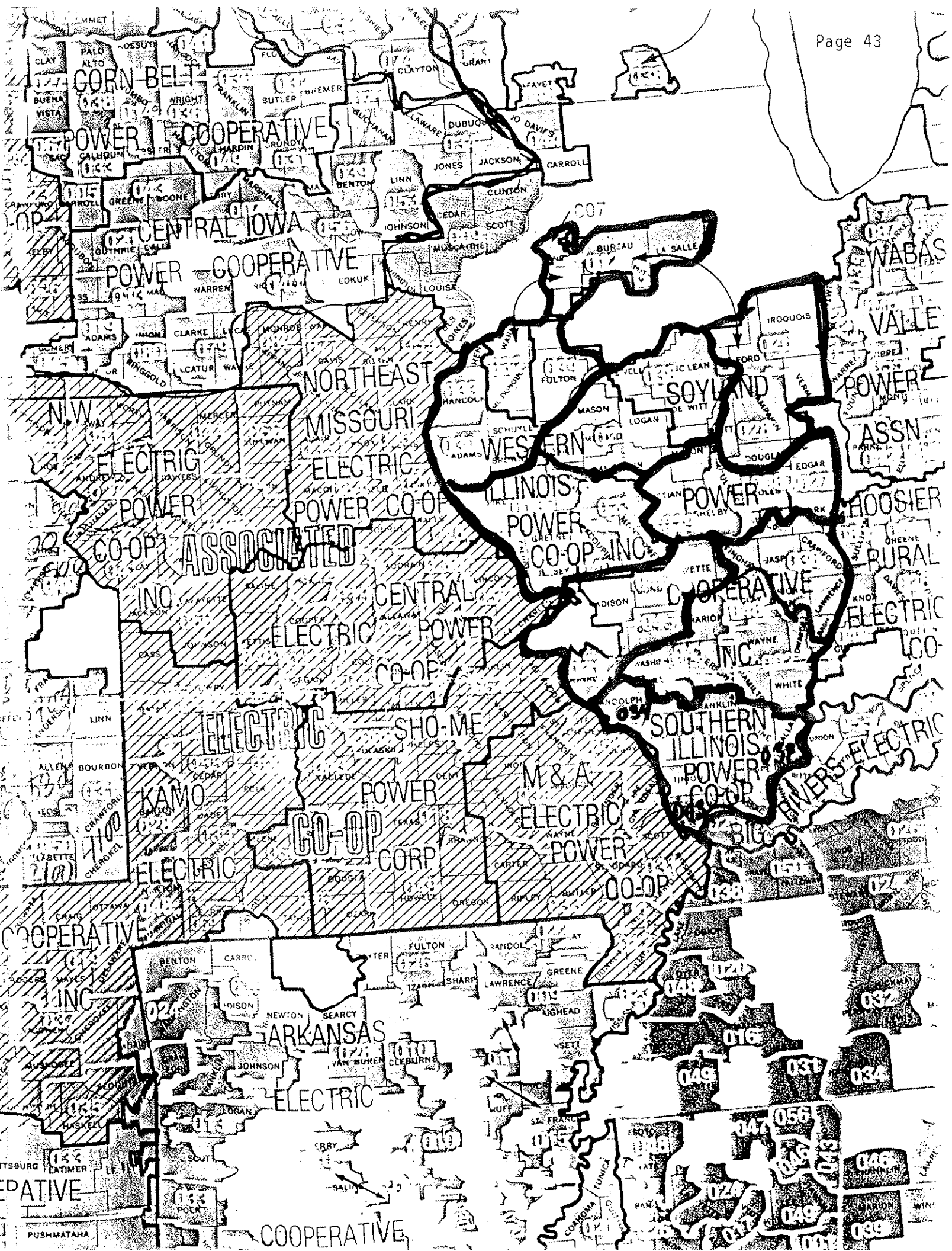
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CENTRAL IOWA POWER COOPERATIVE
NORTHEAST MISSOURI ELECTRIC POWER CO-OP
N.W. ELECTRIC POWER CO-OP
ASSOCIATED ELECTRIC COOPERATIVE INC
CENTRAL ELECTRIC POWER CO-OP
SHO-ME ELECTRIC
KAMO ELECTRIC COOPERATIVE INC
CO-OP POWER CORP
M & A ELECTRIC POWER CO-OP
ARKANSAS ELECTRIC COOPERATIVE
WESTERN ILLINOIS POWER CO-OP INC
SOYLAND POWER COOPERATIVE INC
WABASH VALLEY POWER ASSN
HOOSIER RURAL ELECTRIC CO-OP
SOUTHERN ILLINOIS POWER CO-OP
RIVERS ELECTRIC
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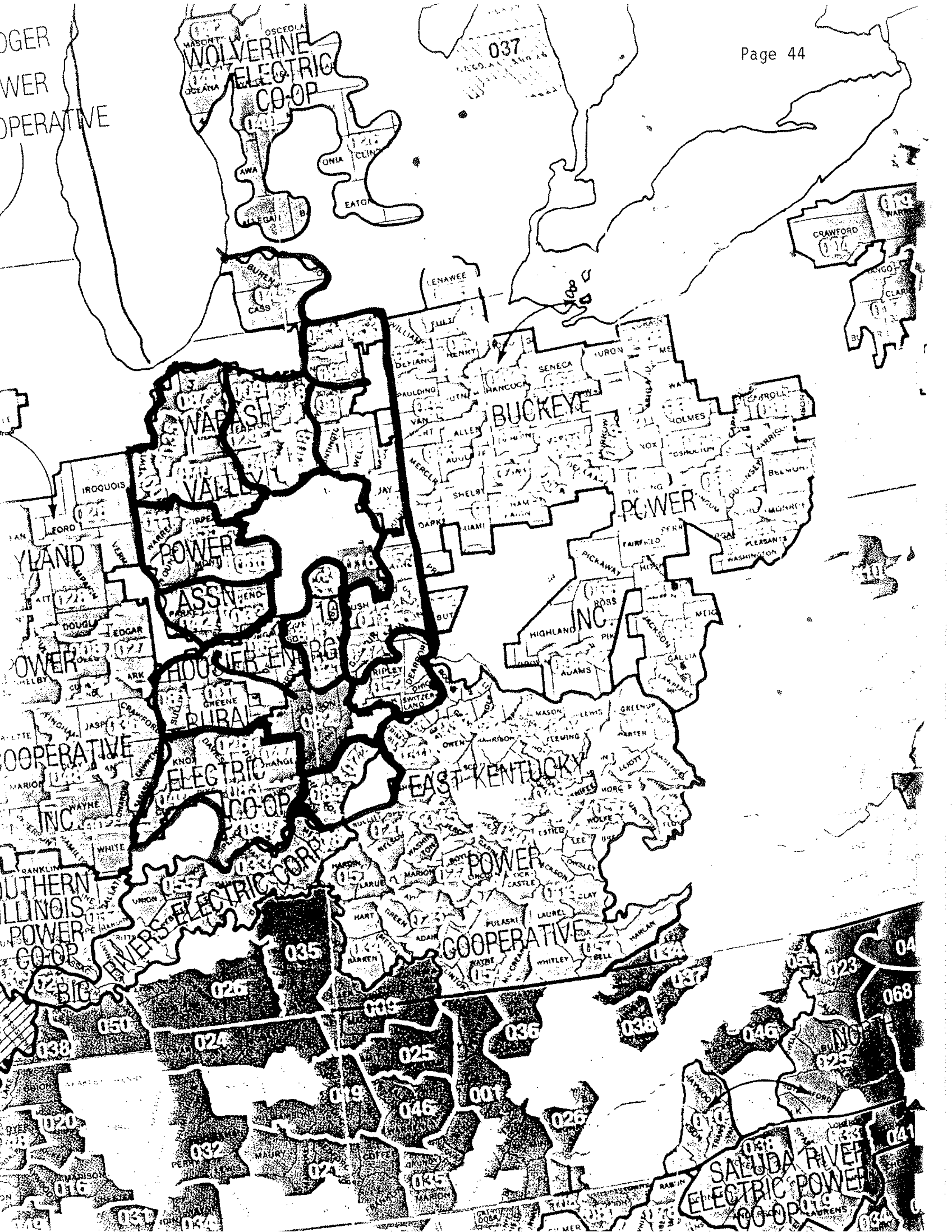
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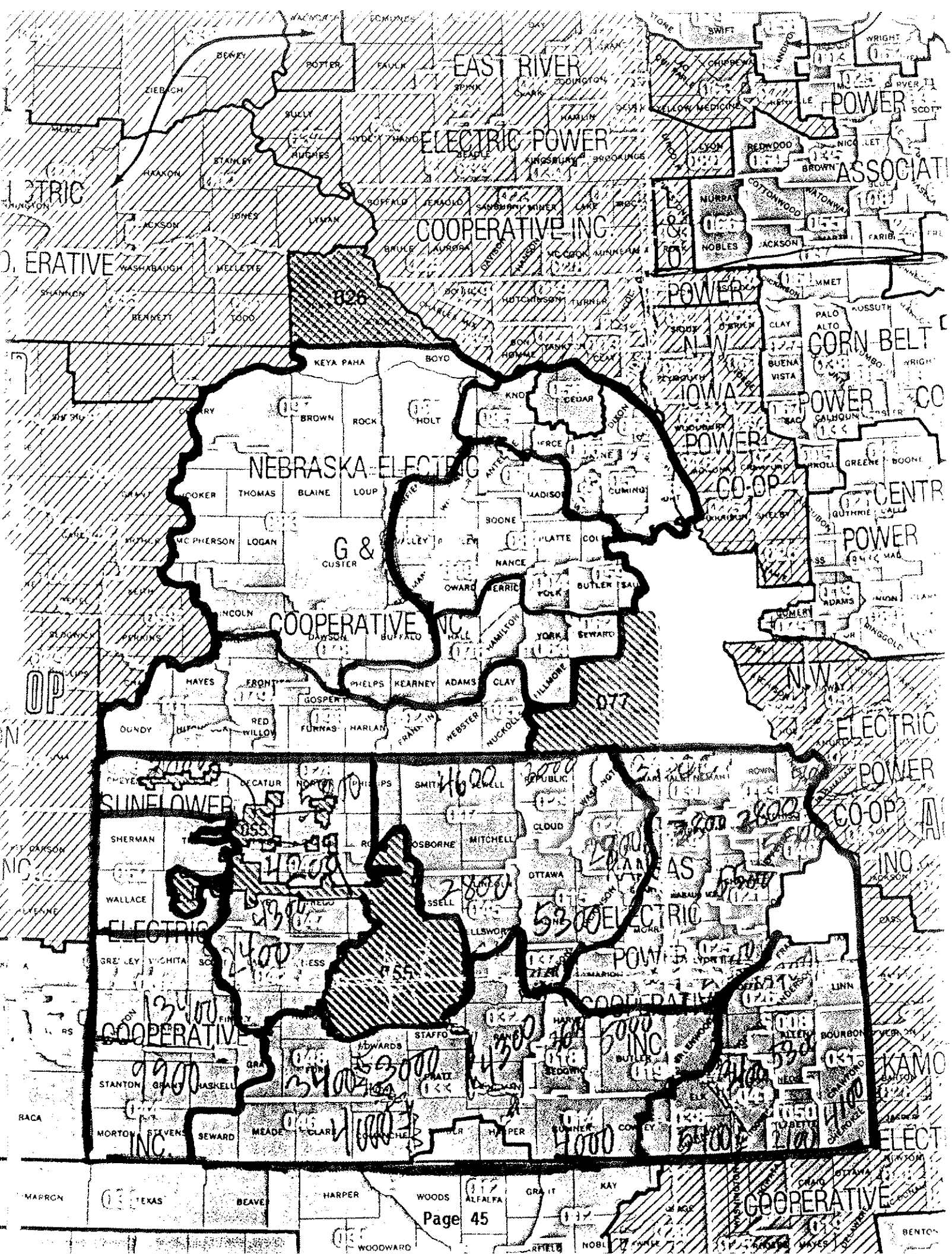
BIG RIVERS ELECTRIC CORP
SALUDA RIVER ELECTRIC POWER CO-OP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CORN BELT POWER CO-OP
IOWA LAKES ELECTRIC COOPERATIVE
NW ELECTRIC POWER CO-OP INC.
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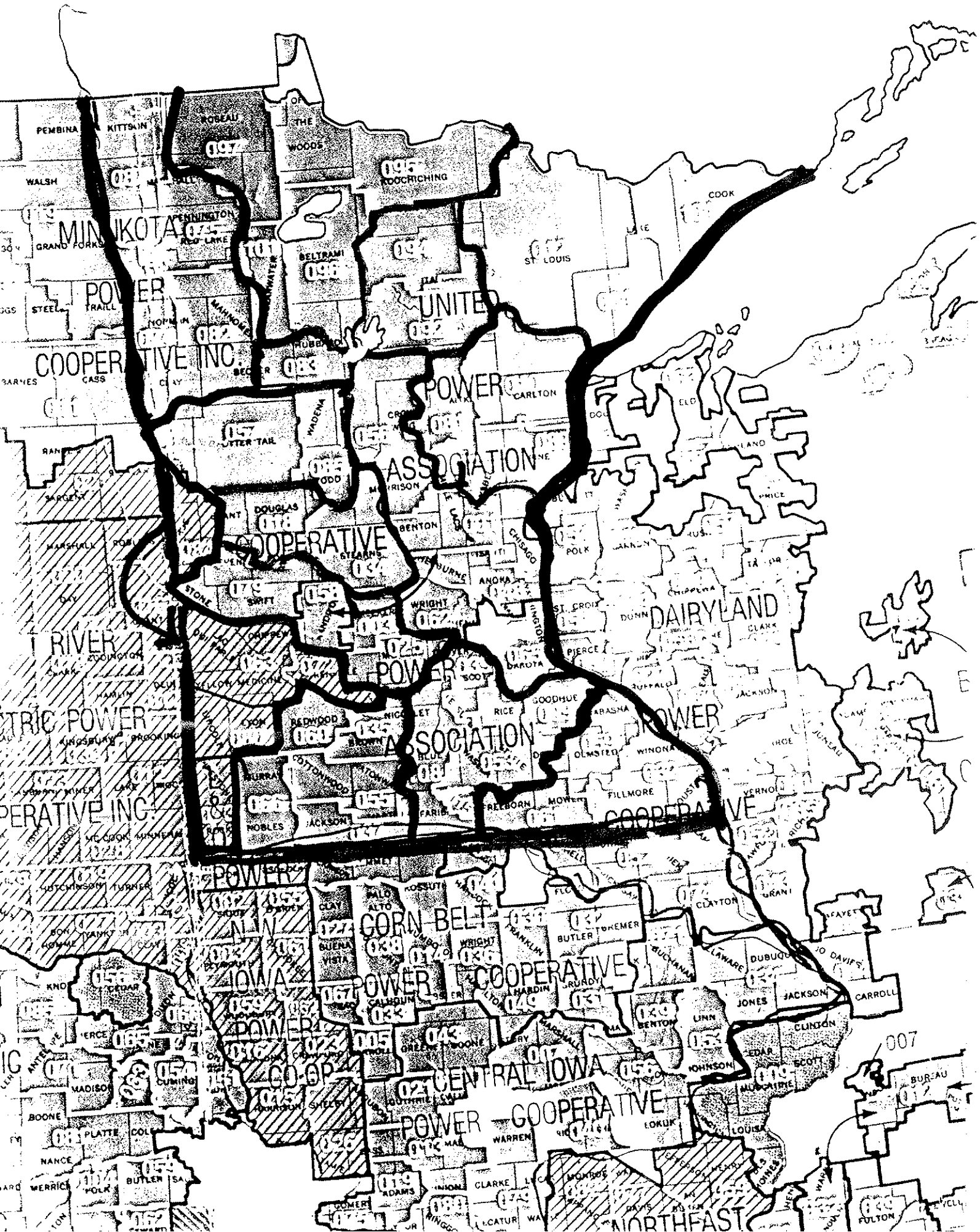
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TRIC POWER
ERATIVE INC.
POWER
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CORN BELT
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CENTRAL IOWA
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Appendix B

The Cost Savings from Consolidation to Efficient-Scale Distribution Systems

The Cost Savings from Consolidation to Efficient-Scale Distribution Systems

Savings per consumer per year

Group Size	Plant	Dist	C'Acct	Admin	Cust	Depr	TOTAL
Iowa							
1. (10)23493	$562	$31.32	$1.81	$65.08	$16.03	$35.91	$150.16
2. (10)22200	170	29.52	2.20	61.11	12.97	5.53	111.34
3. (2) 20421	-175	6.95	-5.75	20.53	3.90	-8.19	17.44
4. (5) 17617	86	27.16	0.62	36.76	2.84	0.94	68.32
5. (6) 19155	297	21.39	1.69	38.78	4.58	11.75	78.22
Illinois							
1. (5) 24063	943	17.52	-1.90	46.03	12.41	-8.59	65.40
2. (2) 19582	615	34.54	2.16	31.20	7.90	12.78	88.58
3. (3) 21555	156	16.82	-4.2	23.05	6.79	0.30	42.74
4. (3) 20973	-413	33.09	1.38	28.72	4.28	-9.47	57.99
5. (3) 22701	556	10.74	2.82	29.88	8.18	14.39	65.99
6. (3) 29133	44	4.55	-5.76	22.19	-0.05	7.28	28.20
7. (3) 38546	225	28.28	0.86	20.83	-2.27	51.79	99.49
Indiana							
1. (3) 19316	-331	-7.40	1.14	18.46	-3.05	-11.11	-1.96
2. (3) 27034	41	2.61	0.44	30.99	12.14	4.47	50.67
3. (5) 31178	-452	-14.49	-0.82	22.56	0.84	-15.29	-7.18
4. (5) 30862	-327	10.49	-6.02	29.15	2.30	-10.40	25.37
5. (5) 24206	-166	10.46	-1.41	22.05	2.87	-3.72	30.25
6. (2) 22603	-33	16.51	-10.40	10.78	-1.31	0.95	16.54
7. (5) 35814	67	4.05	3.29	17.94	1.47	-0.30	26.47
8. (4) 30190	-56	-1.01	-2.36	27.41	12.76	-1.53	35.27
9. (2) 19087	-326	30.09	-3.22	5.13	-3.54	-9.56	18.89
10.(5) 36196	-155	30.76	-2.79	15.06	1.22	-4.18	40.07
11. (2)24029	72	13.52	-0.82	8.42	4.91	2.21	28.25

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Group

Size	Plant	Dist	C'Acct	Admin	Cust	Depr	TOTAL
Wisconsin							
1. (6) 25582	-292	26.93	-2.62	31.62	8.79	-5.50	59.20
2. (5) 28894	-217	11.67	5.75	19.06	6.05	-4.73	32.82
3. (4) 21538	188	7.47	-3.78	16.40	2.02	4.51	26.63
4. (3) 29193	-203	-10.92	-5.67	9.34	2.55	-8.73	-13.04
5. (4) 20778	-165	-0.88	-9.02	14.21	6.55	-3.64	7.22
6. (4) 24677	-111	5.20	-4.41	8.78	9.92	4.67	24.15
7. (4) 22907	52	12.04	1.78	18.74	-0.28	-0.22	32.05
Minnesota							
1. (4) 24632	280	-0.59	-0.38	8.93	9.57	7.08	15.76
2. (4) 23082	-76	-7.20	-2.90	18.74	13.69	-3.87	18.27
3. (3) 27648	-268	-7.00	-4.00	6.90	8.90	-11.60	-6.77
4. (3) 23142	-197	6.40	-5.70	16.00	1.16	-4.38	13.57
5. (3) 21653	103	17.84	-5.20	10.25	-0.58	-1.39	20.90
6. (4) 24859	213	24.59	-4.43	37.79	11.64	13.84	83.43
7. (4) 22532	319	28.06	-3.34	32.04	10.44	5.02	72.21
8. (2) 23942	129	10.09	-9.63	3.17	6.88	1.94	12.44
9. (5) 19038	290	13.15	-6.37	32.96	5.58	2.95	48.28
10. (3)27416	-12	24.20	-4.89	15.38	9.20	-5.57	38.32
11. (5)25006	-4	23.51	-4.75	28.01	6.51	2.27	55.56
12. (2)24838	-448	13.30	-7.50	2.55	5.17	-11.66	1.86
Kansas							
1. (6) 24006	-134	-6.62	-1.76	26.18	-1.86	4.38	20.31
2. (7) 27329	441	12.96	3.27	48.22	2.19	19.97	86.64
3. (7) 23613	-279	-2.63	1.99	39.26	-0.11	0.19	38.69
4. (6) 19375	-473	-14.97	-5.10	16.77	-.41	-8.72	-11.61
5. (5) 14439	11	-17.49	-2.49	26.92	0.14	16.75	23.83
6. (2) 23274	664	-12.22	-4.20	24.68	1.15	30.70	40.11
Nebraska							
1. (3) 22431	-9	-11.28	-14.02	1.82	-1.42	20.40	-4.5
2. (7) 22216	-84	17.32	-4.02	14.65	-3.18	12.51	37.29
3. (6) 26439	-139	12.50	-11.45	14.22	-1.09	3.48	17.68
4. (5) 19998	369	12.54	-6.80	20.59	0.47	14.42	41.20
5. (3) 22364	-315	1.26	-7.58	9.93	-1.31	-5.71	-3.40

CHARACTERISTICS OF MERGING RURAL ELECTRIC COOPERATIVES: A REVIEW OF THE EVIDENCE

By

Frank W. Bacon - Director/Treasurer

Southside Electric Cooperative

Presented to:

THE RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL

May 21, 1990

Lake Tahoe, Nevada

INTRODUCTION

Background

Recently, the concept of merger has captured much attention at the local, statewide, and national rural electric cooperative levels. For example, at the recent NRECA and CFC annual meetings in Orlando, Florida (1990), the programs devoted considerable attention to the merger issue. CFC Governor Chuck Gill noted the need for more efficient distribution systems, citing that the average co-op cost of delivering power is twice that incurred by an investor-owned utility (IOU). "If we are to serve our members more efficiently and at lower costs, we must have more efficient sizing of our distributions systems," claims Gill.

In another session, Ed Tirello, Vice President and Chief Analyst for Shearson Lehman Hutton, predicts that the country's 131 IOUs will horizontally merge or consolidate into as few as 50 distinct organizations by the mid-90s, reducing power costs and saving the average customer $50 a year. These observations and others, too numerous to mention here, by industry officials strongly suggest that mergers are a means of increasing efficiency in the industry. While the expectation of savings resulting from mergers has intuitive appeal, little empirical evidence exists to support the assertion. With the exception of Claggett (1987), Bacon and Shin (1988), and Macke and Hahn (1989), most explanations of merger effects have been primarily descriptive and normative (opinions, prescriptions, or unsupported statements about the should-be advantages of a co-op

merger). The empirical works cited do not try to prove or disprove whether a merger is "good" or "bad". Rather, they attempt to explain the effects of observed rural electric cooperative (REC) merger activity in an unbiased manner.

Purposes

It is reasonable to expect that REC mergers are motivated by attempts to maximize the benefits (wealth) for the owner/consumers. One objective of this work is to examine the various merger motives pertinent to the REC industry. Another purpose is to review and interpret the findings of the REC merger studies cited above. The intent here is to assess the effects of the REC mergers and to chart the direction (and importance) of future research of this question. For example, do the recent studies point to a more appropriate method of investigating the operating and performance effects of REC mergers?

REASONS FOR CO-OP MERGERS

The merger issue advances several meaningful, common-sense questions. Why should co-ops merge? Are there financial, operating, or other economic benefits associated with a REC merger? If so, what are the sources of these gain? Also, what is the rationale for expecting such gains from REC mergers? Table 1 summarizes the frequently mentioned reasons (motives) for co-op mergers. As shown, the reasons cited provide explanations of the underlying motives for merger. This review also provides the underlying rationale for the suggested REC merger motives.

TABLE 1

REC MERGER MOTIVES

Motive	Rationale
To reduce debt	Because certain smaller RECs may face excessive debt and interest charges, it follows that a merger creating a larger firm might be more efficient and lower the firm's debt burden.
To increase liquidity	Mergers of smaller RECs into larger organizations may improve cash availability and liquidity management.
To increase activity (asset utilization)	Low activity may reflect poor management use of assets; thus mergers may be a way of improving asset utilization.
To increase profitability	Because of higher distribution costs, acquired RECs may be less profitable than their larger merger partners. Thus, mergers may increase efficiency, reduce unit costs, and elevate co-op margins.
To increase managerial efficiency	Firms with weaker managerial efficiency can be acquired by firms with stronger managerial talent resulting in increased REC efficiency.
To engage economies of scale	Mergers may produce economies of scale - involve "indivisibilities," such as people, equipment, and overhead, which provide increasing returns if spread over a large number of units of output.

The reasons for co-op mergers appear to focus primarily on efforts to increase efficiency and/or engage economies of scale. If the management of firm X is more efficient than firm Y's, then a merger of X and Y should increase the efficiency of Y provided that X is successful at raising Y's management performance. Thus, the new firm XY exhibits greater efficiency than the sum of the individual efficiencies of X + Y. Such a merger should increase efficiency in the industry and provide benefits (savings) to the co-op consumer/owners. It is quite likely that acquisitions of this type would occur among firms in the same industry (horizontal). This appears plausible since managers in the same line of business would possess the necessary technical and managerial know-how to discover weak performers in the industry and once merged, improve efficiency.

Economies of scale is another driving force of REC mergers. The firm possesses certain "indivisibilities" such as personnel, machinery, and overhead which could produce increasing returns to scale if spread over a larger number of units of output. Economies of scale are present in the production process when large output volumes can be produced at a lower cost per unit than small volumes. This is especially true in large manufacturing operations where heavy investments are required in highly technical plant and equipment. Electric utilities are a good example.

Factors giving rise to economies of scale include greater specialization of resources, more efficient utilization of

equipment, reduced unit costs of inputs, and utilization of by-products. Economies exist in production, research, marketing, and finance. Thus, as firms merge into larger organizations, certain economies may surface and efficiency increases.

SURVEY OF RECENT REC MERGER STUDIES

The empirical research on the suspected efficiency effects of REC mergers is limited. The three studies reviewed here appear to be the bulk of the available empirical work. These studies follow two approaches to investigate the relationship between mergers and REC efficiency. It is convenient to identify these two approaches as the indirect and direct methods of studying REC mergers. The Claggett and Macke/Hahn studies used the indirect while the Bacon/Shin study employed the direct approach.

The indirect studies of the relationship of mergers and efficiency do not examine actual past REC mergers. Instead, they investigate the cost relationships that exist for a sample of unmerged co-ops. Using a sample of RECs over a specified period of time, these studies try to estimate the relationship between size and cost parameters (while holding other variables constant). If the analysis of the observed REC data suggests that increasing size is associated with significant (more than what would be expected by mere chance) reductions in costs of distribution, then the potential benefits from economies of scale would provide strong support for increased REC merger activity.

If no significant relationship between size and cost is observed, then these studies would discourage merger activity since economies of scale and savings may not correlate with increased size. By observing past cost relationships of existing firms, these studies try to predict what would happen if a merger were to take place. The findings (predictions) are based on these observed relationships, not the actual REC mergers.

On the contrary, the "direct" study approach focuses on the actual merger events that have taken place in the industry. These findings are based on observed financial and operating efficiency effects surrounding actual REC mergers. These findings (predictions) are derived from observations of actual REC mergers, not the cost relationships of a sample of existing firms. Specifically, this research seeks to discriminate merged from non-merged RECs on the basis of certain financial and operating characteristics and performance (possible motives for REC mergers) before and after the merger. The statistically significant discriminators are then labeled as possible reasons of co-op mergers. For example, if it can be shown that the merger phenomenon improves performance from before to after the merger, then strong support for increased REC mergers is suggested. These study conclusions are based on the observed results of actual mergers already taken place in the industry.

Nebraska REC Study

Macke and Hahn (1989) conducted an indirect study of the suspected effects of mergers on Nebraska RECs. Specifically, this study attempted to assess the existence of economies of scale by examining the cost relationships using simple correlation coefficients. At the outset, it is important to note that this methodology does not provide an acceptable test for the existence of economies of scale. The data from 32 Nebraska RECs was used to calculate correlations and r-squares between four selected system characteristics (factors) and system distribution cost per consumer. Table 2 provides a summary of their findings.

TABLE 2

COST AND SYSTEM CHARACTERISTIC CORRELATIONS

Cost Variable	System Characteristic	Correlation Coefficient	R-Square
Average system distribution cost per mile	Consumers per square mile	-.27	8%
Average system distribution cost per consumer	Consumers per system	-.33	11%
Average system distribution cost per consumer	Irrigation load management as % of total	+.40	16%
Average system distribution cost per consumer	Consumers per mile of distribution line	-.42	18%

The correlation between two variables indicates the degree of covariance. Stated differently, the co-movement (or how they move together) is captured by the correlation coefficient which

scales this covariability between -1 and +1. For example, -1 would be interpreted to mean that when one variable increases by 10%, the other variable decreases by exactly 10%. A correlation of 0 suggests that the two variables are unrelated while a +1 indicates perfect co-movement in the same direction at the same time. The correlation coefficient squared provides the r-square or coefficient of determination. Often referred to as the explanatory power of a given variable, this measure reveals the percentage of total variance explained by that explanatory variable. For example, the characteristic (consumers per mile) explains 18% of the total variance in average distribution cost per consumer.

Macke and Hahn's interpretation of their findings needs clarification on several accounts. First of all, they interpret the -.27 correlation and 8% r-square of the consumers per mile factor as a "weak to moderate indicator that as the number of customers per square mile increases, the costs of distribution will increase" (p. 35). An accurate interpretation of the -.27 correlation suggests that as consumers/square mile increases, the cost of distribution/customer will decline. Rather than "weak to moderate" the 8% r-square for this factor explains "very little" of the variance in costs of distribution for this sample.

Similarly, their interpretation of the relationship between consumers per system and distribution costs per consumer is misleading. Here again, they cite a direct relationship between the two variables when the -.33 correlation dictates negative co-

movement (or as size rises, cost per consumer falls).

For the remaining factors, load management and consumer density, they correctly interpreted positive and negative associations with cost, respectively. Because the density and load management r-squares are higher than that for the size variable (consumers per system), they conclude that size is a poorer determinant of efficiency than either consumers/mile or load management. They therefore reason that "it is careless to suggest in a state like Nebraska that the economies of scale due to mere size alone will bring benefits to rural electric consumers" (p. 36). From this logic the researchers imply that mergers may not increase efficiency in the sample studied and that other systems should also consider this cautious advice before merging. Because the researchers did not adequately test for the existence of economies of scale and/or other possible effects of mergers, these findings are premature.

Throughout this article, the authors drew causal linkages between their four factors examined and the cost of distribution. Correlation coefficients only provide relationships (+,0, or -) between variables, not cause/effect deductions. The correlations and r-squares can only suggest the direction of the co-movement between variables and the relative strength of their association.

It is therefore misleading to refer to any of the four factors as either "poorer or stronger determinants" of costs. It is even worse to either claim or disclaim the existence of economies of scale on the basis of these statistics (an

acceptable means of examining the existence of economies of scale follows in the next section). Further, the notion of economies of scale is only one of the many motives (see Table 1) linking REC mergers to efficiency and therefore should not be the only consideration for merger.

It is reasonable to expect that firms with the same density could merge and reduce costs per consumer. At best, the results of this work (when correctly interpreted) corroborate the expected inverse relationship between size and cost per consumer, a basic tenet of the existence of economies of scale. But to adequately assess the strength of the economies, the factors affecting cost must be analyzed simultaneously (in a multivariate framework) and appropriate tests of statistical significance must be performed to see if the results differ significantly from what would have normally been expected by mere chance.

TVA REC Economies of Scale Study

Using modern econometric and multivariate statistical techniques, Clagget (1987) tested 50 RECs served by the Tennessee Valley Authority (TVA) for the existence of economies of scale. Using the data over the period 1981-1984, the appropriate multivariate production and cost functions were developed and tested.

The purpose of these tests is to thoroughly analyze the relationship between costs, size, and output in a controlled framework. Linear relationships of these variables are solved simultaneously while attempting to hold other extraneous effects

constant. If these outside effects are not controlled, it is hard for the researcher to make sound claims about the relationship between firm size and costs, the basis of economies of scale.

Using ordinary least squares multiple regression analysis, the linear relationships were then tested on the data for the TVA RECs. The intent was to see if increasing returns to scale were present. Stated differently, are increasing returns associated with increases in size? If so, then increases in REC size (possibly through merger) should bring about decreases in cost per consumer. The results are then tested for statistical significance to see if the observed outcomes are significantly different from what would have been expected to occur by mere chance.

Using this methodology, Clagget analyzed the sample of 50 TVA RECs. According to Clagget, "The primary conclusion is that because the cooperative distributors of this study display increasing economies of scale, individual co-ops within this group should be increased in size when such opportunities present themselves. There are no obvious reasons why this conclusion cannot be extrapolated to the total population of distributing electrical cooperatives" (p. 17).

A Study of REC Mergers During the Period 1962-1984

Bacon and Shin (1988) conducted a direct study of the REC mergers for the period 1962-1984. The purpose of this study was to empirically examine the possible effects of the mergers

identified during this time period. For the readers convenience, a copy of the Bacon/Shin article is provided in Appendix A. This type of study uses the following rationale.

Can the merged RECs be distinguished from a random sample of non-merging RECs on the basis of certain operating and financial characteristics? If so, then the merged RECs can be presumed to possess commonalities (unique financial and operating characteristics) which, when analyzed collectively (in a multivariate framework), can discriminate them from their non-merged counter-parts. If mergers are motivated by the desire to increase efficiency, then it follows that pre-merger firms should exhibit significantly measurable differences from the random sample of non-merged firms on the basis of efficiency. Thus, it is reasonable to expect the merging RECs to exhibit significantly lower efficiency measures when compared to the non-merging RECs just prior to the merger event. This is plausible because the merging firms may be suffering from inefficiency (excessive costs per consumer) partly due to suboptimal size. Therefore, as a rational solution, the smaller, weaker RECs could merge into larger more cost efficient organizations.

In order to identify the specific characteristics (variables) which appear to set the 37 merged RECs apart from the 37 randomly selected non-merging RECs, Bacon and Shin employed multiple discriminant analysis (MDA). MDA tries to classify individuals or objects into mutually exclusive groups on the basis of certain characteristics.

For example, assume a bank possesses the characteristics (i.e. income, home-ownership, debt ratios, etc.) on a group of good and another group of bad loan customers. Analyzing the multiple variables for each group simultaneously, MDA develops a multiple discriminant function (decision model) which tries to accurately discriminate the good from the bad loan customers on the basis of the measured characteristics. In essence, this function maximizes the differences between the groups and based on this input, it attempts to correctly classify the good customers with the good group and the bad customers with the bad group. Of course, a high percentage of correct classifications is desireable for a valid model. Using similar logic, Bacon and Shin employed this technique on the two groups of merged and non-merged RECs to see if strong differentiating characteristics existed.

A large number of operating and financial ratios were computed for each of the 37 merged and 37 non-merged firms at chronological time periods in the year prior to merger. Using the stepwise MDA technique, the original set of 30 ratio variables was reduced to 9 which captured most of the discriminatory power of the final MDA model (see results in Table 3). In short, this technique statistically compared the ratio variables for the merged and non-merged groups to determine the key discriminating characteristics and rank them by order of influence.

Of the 74 firms examined, the final MDA model classified 69

correctly achieving a 93% accuracy rate (see results in Table 4). Compared to other similar studies, this model's accuracy ranks very high.

TABLE 3

MDA RESULTS

Key Discriminating Characteristics	Classification	Discriminatory Power Rank
Total Margins / Total Assets	Profitability	1
Total Consumers / Miles of Line	Density	2
O & M Costs/Consumer / Consumers/Employee	Efficiency	3
Interest on LT Debt / Total Revenue	Leverage (Debt)	4
Long-Term Debt / Total Assets	Leverage (Debt)	5
O&M + A&G + CA/Consumer / Consumers/Employee	Efficiency	6
A&G + Consumer Acct. (CA) / Total Revenue	Efficiency	7
Admin. & General (A&G) / Total Revenue	Efficiency	8
Oper. & Main. (O&M) Costs / Total Revenue	Efficiency	9

TABLE 4

CLASSIFICATION SUMMARY FOR MDA MODEL

From Group	To Merged	To Non-Merged	Total
Merged	35	2	37
% accuracy/inaccuracy	94.6	5.4	100
Non-merged	4	33	37
% accuracy/inaccuracy	10.8	89.2	100

Compared to the randomly selected non-merged firms, in order of significance, the merged RECs exhibited lower profitability, higher consumer density, lower operating efficiency (i.e. higher relative operations, maintenance, consumer accounting, administration and general expenses), higher debt, and lower debt service ability. Remember, these differences were significantly greater than one would have expected by mere chance. These results suggest a strong association between mergers and efficiency in the REC industry. Since the merging RECs were significantly less efficient than the randomly selected non-merging RECs as was expected, the evidence on REC mergers to promote efficiency appears strong.

An interesting outcome of this study was the finding for consumer density for the two groups. Surprisingly, the inefficient, less profitable, and smaller merging RECs possessed significantly higher consumer density than the non-merging group. It would have been reasonable to expect just the opposite since higher consumers per mile should correlate with superior profitability and operating efficiency. This finding suggests

that merging for the purpose of increasing consumer density was not the case for the REC mergers observed here. This result directly contradicts the Macke and Hahn study since they argued that if a firm could not increase consumer density along with size (through merger), then such mergers probably would not boost efficiency. If this is true, then why were the randomly selected non-merged RECs in this study more profitable, more efficient, and larger even when they operated with lower consumer density than the merging RECs? Clearly, the observed behavior of actual mergers in the industry does not agree with the Macke/Hahn findings.

PROPOSED RESEARCH

Since the merging RECs appear to be significantly less efficient than the non-merging RECs just prior to merger, a logical research extension of the question of REC mergers and efficiency would be to see if efficiency increases from before to after the merger. Do the combined RECs exhibit significant efficiency performance gains from before to after the merger event? If mergers are motivated by desires to increase efficiency, then it follows that merged firms ought to show significant gains in efficiency variables from before to after the merger.

Bacon and Shin are currently conducting this study using 42 REC combinations over the period 1948-1988. The group of merged firms will be statistically compared to a matched sample (by size, consumer density, location, and chronological time period)

of non-merged RECs. Observations up to five years before and five years after the merger will be analyzed in a multivariate framework. If REC mergers are associated with increases in efficiency, then the merged RECs in this study ought to significantly outperform the matched sample on the basis of the efficiency variables.

This direct study of REC mergers should aid in clarifying the questions raised by the work reviewed herein. Also, this research should provide some "hard" evidence for the industry leaders (REA, CFC, and NRECA) in directing the future growth of rural electrification through merger.

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Claggett, E. Tylor, "Cooperative Distributors of Electrical Power: Operations and Scale Economies," Quarterly Journal of Economics and Business, (Summer, 1987), pp. 3-21.

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APPENDIX A

Should we? Could we? What would it cost? What would it save? How would it affect our members and employees? These questions and a host of others have been asked during the past 25 years or so during discussions of cooperative mergers, and the answers have generated, at times, more heat than light. What does *make the difference between a successful and an unsuccessful merger candidate? Until recently our best attempts to answer the question have been purely that—attempts.*

In the most carefully researched effort to date, Frank Bacon, a member of one of our boards, and Tai Shin, a highly skilled member of the academic community, have analyzed cooperatives which merged in comparison with some which have not. We are honored to be able to share their results with you. (And in something of a departure from usual editorial practice, we have included all their substantiating data because it is a marvelous source of information which may prove helpful to so many of you.)

A Study of Selected Rural Electric Cooperative Mergers During the Period 1962-1984

By Frank W. Bacon and Tai S. Shin, Ph.D.

Frank Bacon serves on the board of directors of Southside Electric Cooperative in Crewe, Virginia. He is an associate professor of finance at Southside Virginia Community College. Currently Mr. Bacon is a visiting instructor of finance at Virginia Commonwealth University where he is also a candidate for a Ph.D. He received a Bachelor of Science degree in business administration from the University of Richmond and a Master of Science degree in finance from Virginia Commonwealth University. Mr. Bacon resides in rural southside Virginia and has strong research interests in the rural electric cooperative organization's development and role in rural economic growth.

Dr. Shin is a professor of finance and the coordinator of the finance faculty in the School of Business at Virginia Commonwealth University. He received his B.A. from Oklahoma City University, and his M.A. and Ph.D. degrees from the University of Illinois at Champaign-Urbana. He teaches corporate finance, investments, and banking. He has published articles in academic and professional journals.

Summary

Recently, the idea of cooperative mergers has become a dominant topic at most rural electric cooperative (REC) meetings. Concerned about the industry's continued growth and success, REC leaders constantly stress the merger alternative as the "hope for the future." Interestingly, little quantitative evidence explaining the industry's past merger activity exists. The authors of this article suggest that such evidence could be significantly useful to co-op managers and directors in successfully assessing, justifying, and completing a financially healthy merger. Specifically, this study characteristically examines selected REC merger firms from 1962 through 1984 to determine whether similarities do exist among the merged firms that might statistically set them apart from the nonacquired firms. The study results suggest that the dominant characteristics which appear to identify the "should-be" merger co-ops are (in order of significance): low profitability, poor operating efficiency, and excessive levels of debt.

Introduction

Recently, the concept of business combination or merger has captured much attention at local cooperatives, statewide associations, and the National Rural Electrification Association (NRECA). The merger issue consistently arises at most local, state and national meetings as a critical topic for rural electric cooperatives to consider.

The merger concept appears rather simple. Through a successful merger, acquisition or combination, financially weak RECs can integrate into larger organizations which should realize greater economies of scale. Furthermore, the industry, the particular REC, and especially the cooperative members can all benefit from the expected savings.

While the expectation of savings resulting from the merger has intuitive appeal, little hard evidence exists to support the assertion. In particular, little research, other than descriptive efforts by King (1983) and Bowman (1984), has been done to identify those RECs which may characteristically lend themselves to potential acquisition or to study the effects of existing mergers. This study characteristically examines selected REC merger firms from 1962 through 1984 to determine whether similarities do exist among the merged or acquired groups that might statistically set them apart from the nonacquired firms. The study of merger effects is reserved for a later date.

Specifically, if the acquired RECs exhibit similar financial and operating characteristics that set them apart from cooperatives not suited for mergers, then knowledge of such characteristics could be immensely useful to managers and directors in justifying and promoting the merger alternative. Certainly, such information could aid rural electric leaders in marketing the merger concept.

Recent Utility Merger Activity

Corporate mergers have increased significantly in recent years (Baker, 1986). And many (Bowman, 1984; Bailey, 1985; Cook, 1985; Thompson, 1986; Murray, 1986; Laing, 1986) suggest that increased merger activity in the utility industry is inevitable. Murray found utility mergers and acquisitions in 1985 to be thirty-eight percent higher than in 1984.

The major reasons cited for the escalating utility mergers include overexpansion, competition, excess generating capacity, breaching of territorial franchises, deregulation, and the desire to diversify. For the electric utility, the merger alternative offers economies of scale and concentration of resources that should result in more efficient transmission of power and increased competitive strength. Analysts believe that initial mergers will be "mergers of weakness" or mergers by utility firms that are heavily strained by over-investment in power plants (Bailey, 1985; Cook, 1985). As an example, Bowman (1984) cited a case where two financially weak rural electric cooperatives were able to avert disaster through consolidation.

Laing (1986) expects the bulk of electric utilities to be cash rich by 1990. The excess cash coupled with desire to diversify should motivate larger electric utilities to buy out their weaker neighbors.

The REC Merger Issue

Gibson (1987) reports fifty-four REC mergers for the period 1962-1984. According to John C. Anderson (based on a March 11, 1987 interview), Executive Vice President of Southside Electric Cooperative and member of the NRECA research committee, the recent increase in the number of mergers suggests a trend. He expects this trend to escalate over the coming decade as the weaker cooperatives face mounting economic pressures. When asked whether there were certain variables that could identify the weaker firms (presumably the merger candidates), Anderson cited the times-interest-earned, debt service, employee/member, consumer density, investment per member, equity, and operating margin ratios to name a few.

Anderson suspects that currently many rural electrics should be seriously considering the merger alternative. Often the potential merger candidate delays the merger consideration until the firm experiences serious financial and operational difficulties, thus significantly reducing the chances of a successful merger.

Anderson agreed that early identification of potential merger candidates could significantly improve the chances of a successful merger.

Expected Merger Effects

In general, most studies (Falk and Gordon, 1979; King, 1983; Wansley, Roenldt, and Cooley, 1983; Maugans, 1986) cite economies of scale, strengthened financial health, increased return to the owner, and reduced operating and financing risk as the primary results expected of a business combination.

Specifically, Falk and Gordon surveyed fifty-one United States and sixteen Canadian senior financial executives of companies active in mergers and acquisitions. Results pointed to seven key expected merger effects: (1) improved managerial performance, (2) increase in competitive position, (3) operating economies, (4) improved internal relations and organization design, (5) increased liquidity, (6) increased external relations, and (7) indirect financial incentives.

In a study of key expense ratios for 900 rural electric cooperatives, King (1983) found that administrative and general expenses along with total operating expenses less power costs were much higher for a small distribution system than for the larger counterpart. From this he sugested that rural electric cooperatives could increase size through merger, reduce costs through economies of scale, and reduce the need for rate increases.

While the expected effects of business mergers appear consistent throughout the literature for corporations, little evidence (other than King, 1983) exists for rural electric cooperatives.

Identification of Merger Partners

Another key concern in the merger process is the identification of potentially successful merger candidates. Unsurprisingly, little research exists in this regard. In fact, Jensen (1982) indicates that identification of high quality merger prospects can be a hit-or-miss affair. However, many studies (Blum, 1981; Narvaez, 1983; Bradley, 1984; Jones, 1985; Perry, 1985) suggest that the identification stage is the most critical factor in determining a successful merger. Consequently, the firm should extensively research potential merger partners. This planning is critical to the merger's succes.

Kierueff (1981) cites some general characteristics of good merger partners: (1) well-defined market, (2) growing, (3) cyclical stability, (4) seasonal stability, (5) provide essential products, (6) exhibit high value added (7) high technical know-how, (8) short production cycle, (9) re-

lated to the acquirer, and (10) in geographical proximity of the acquirer. Using these factors, along with other pertinent characteristics, checklists can be developed to guide the acquirer in obtaining information about the internal and external position of the company, its officers, its products, its market position, and its labor and trade relations (CPA Journal, September 1982; CPA Journal, November 1982).

Kieruefl's suggested characteristics appear to fit very well in the electric utility industry as a whole and particularly so for the rural electric industry where merger activity is growing. With such growth, it appears essential that more research be aimed at the identification stage.

Thus this study examines selected merged RECs to determine the underlying factors (financial and operating characteristics) possibly responsible for the merger.

Method and Sources

Sample Selection

The study samples consist of 37 acquired and a matched sample of 37 nonacquired firms over the period 1962-1984. The latter are matched to the merged group by year of combination. The nonacquired sample was selected to provide comparability with the merged group. Table 1 lists the acquired group by year of combination.

Table 1
Mergers by Year

Year	Number of Firms
1962	1
1963	2
1964	3
1965	2
1966	5
1967	1
1968	4
1969	3
1971	2
1972	2
1973	1
1974	4
1977	2
1979	3
1982	1
1984	1

In order to focus on the financially weak combining firms, only those firms with equity-to-total assets ratios under 50 percent were selected. Profiles of financial, size, and operating characteristics by group and for the total are shown in Appendix A.

The group of 37 nonacquired firms were randomly selected from approximately 985 organizations listed in the industry's *1985 Statistical Report of Rural Electric Borrowers.*

Ratios

Meaurement

For the acquired group, financial statement data were obtained from the industry's *Statistical Report of Rural Electric Borrowers* for the year prior to combination and a set of operating, financial, and size ratios for these firms were computed. A description of these ratios appears in Appendix A.

In order to minimize the time effect on the study's results, the random sample of nonacquired firms were randomly assigned to the predetermined set of merger years (Table 1). And the equivalent set of operating, financial, and size ratios were computed for the nonacquired group.

Classification

The original set of 33 ratios were selected from the *Borrower Statistical Profile-Formulas and Sources,* a listing of the industry's key statistical performance measures. Because some of these measures were not in ratio form the original set was transformed into a new set of 30 ratios,. The use of ratio measures is desirable when studying data over time.

The transformed ratios are listed and defined in Appendix B. Table 2 shows the classification of the ratios.

Results for the transformed set of ratios for the acquired, nonacquired, and both groups appear in Appendix C.

Table 2
Ratio Classification

Name (See Appendix B for description)	Classification	Name	Classification
MPCIPL	Profitability	DPCPPC	Capitalization
RRTR	Profitability	CURAT	Liquidity
CIRTR	Profitability	CONSM	Consumer Density
OPMTR	Profitability	OVHFAC	Overhead Factor
NETMTR	Profitability	AGPCT	Overhead Factor
POWTR	Profitability	AGPCCPE	Overhead Factor
TRTA	Profitability	CAPCCPE	Overhead Factor
MGNTA	Profitability	CAPCT	Overhead Factor
RPMPPM	Profitability	AGTR	Overhead Factor
DSC	Leverage	AGCATR	Overhead Factor
TIER	Leverage	OMPCT	Operating Efficiency
IPCDPC	Leverage	OMPCCPE	Operating Efficiency
ITR	Leverage	TPCCPE	Operating Efficiency
EQUI	Capitalization	OMTR	Operating Efficiency
DTA	Capitalization	EMPLM	Employee Efficiency

Table 3
MDA Results

Key Discriminating Characteristics	Classification	Discriminatory Power Rank (From 1-highest to 9-lowest)
MGNTA	Profitability	1
CONSM	Consumer Density	2
OMPCCPE	Operating Efficiency	3
ITR	Leverage	4
DTA	Capitalization	5
TPCCPE	Operating Efficiency	6
AGCATR	Overhead Factor	7
AGTR	Overhead Factor	8
OMTR	Operating Efficiency	9

Analysis

In order to identify the specific characteristics (variables) which appear to set the merged group apart from the unmerged cooperatives, the Multiple Discriminant Analysis (MDA) statistical technique was employed. Also the Stepwise Discriminant Technique was used to rank the key discriminating variables by order of influence. In short, these techniques statistically compared the operating and financial ratios (variables) for the merged and unmerged groups to determine the key discriminating characteristics and rank them by order of influence.

The results of the tests appear in Table 3.

As shown, the profitability measure (MGNTA) was the most powerful ratio in setting the merged firm apart from the unmerged counterpart. It follows that RECs with high return-on-assets ratios will be less likely to merge than those with low profitability measures.

Consumers per mile (CONSM) was the second most powerful discriminating characteristic. Since CONSM is directly proportional to revenue per mile, it follows that rural electrics with low consumers per mile (suggesting financial weakness) should fall among the merged group. However, in this study the merged group's CONSM ratio was 5.14, higher than the 3.67 ratio for the unmerged

group.

Although further evidence is needed to explain this apparent abnormality, the findings suggest that low consumer density should not be argued as justification for merger. Since the unmerged group scored higher profitability (even with lower consumer density) than the merged group, possibly the merged group's weaker performance is more closely linked to poor operating efficiency than to consumer density. If so, this evidence suggests that a rural electric's natural consumer density endowment should have little effect on the merger decision.

The third most powerful discriminatory variable was OMPCCPE (defined in Appendix B), a measure of operating efficiency. It follows that those rural electrics with relatively high operations and maintenance costs per consumer and relatively low consumers per employee appear to be prime merger candidates.

The fourth and fifth ranked ratios were ITR and DTA, classified as leverage and capitalization measures, respectively. Those firms with an excessive ITR (interest on long term debt to total revenue) appear to characterize the typical merged group. Similarly, those cooperatives with high DTA (debt to total assets) ratios offer a strong merger tendency. Thus relatively high levels of long-term debt coupled with difficulty in servicing such leverage appear to be strong signals of needed merger.

The remaining ratios (TPCCPE, AGCATR, AGTR, and OMTR) offering significant discriminatory power suggest that poor operating efficiency and high relative overhead (administrative and general expenses) are typical merger candidate characteristics.

The MDA model responsible for these study results was tested for statistical accuracy. Generally a model's results are less refutable the higher the model scores on classification accuracy. The model used in this study accurately classified (as either merged or unmerged) 93 percent of the 74 organizations examined.

Additionally, the model was tested on 10 rural electric cooperatives that Gibson (1987) described as near-merger prospects. These were organizations whose merger attempt failed due to "problems" among their boards. Two unmerged firms (not included in the original sample of 74 firms) were randomly selected and included in this test. It follows that the model should accurately classify these 12 new firms. The results of the validation procedure show that the model developed in this study was 80 percent accurate in classifying this group of firms. Thus the results of the model should be strong with such high classification accuracy.

Conclusion

The purpose of this study was to examine selected rural electric cooperatives which have merged between 1962 and 1984 to detect possible characteristics responsible for merger. In this regard, a matched random sample of unmerged cooperatives was compared (using financial and operating ratios) to the merged group to spot significant differences.

Although further testing is necessary, the dominant characteristics which appear to set the merged rural electric cooperative apart from the unmerged are (in order of significance) profitability, consumer density, operating efficiency, leverage and capitalization measures. Compared to the unmerged firms randomly selected in this industry, the typical rural electric merger candidate exhibits lower profitability, high consumer density, lower operating efficiency (i.e., higher relative operations, maintenance, consumer accounting, administration, and general expenses), higher debt, and lower debt service ability. Clearly, such evidence can be useful to REC leaders in explaining, identifying, justifying, and promoting merger activity.

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Exhibit A
Analysis of Original Variables

Ratio	Definition	MEAN BY Merged Group	Non-merged	Total
X1	Debt Service Coverage = Depr. + I + Mgn. / Coverage Change in REA Debt (Prev. Yr.)	1.142	2.346	1.744
X2	Times Interest Earned Ratio = Mgn. + I / I	1.152	8.371	4.761
X3	Equity = Total Mgn + Equities / Total Assets & Other Debits	.181	.374	.278
X4	Debt / Total Assets = Long-term Debt / Total Assets	.773	.584	.678
X5	Consumers / Mile = Total Consumers / Total Miles of Lines	5.140	3.669	4.405
X6	Revenue / Mile = Operating Rev. + Pat. Cap. / Total Miles of Line	$1,441.00	$1,123.11	$1,282.00
X7	Total Cost / Mile = Total Cost of Elec. Serv. / Total Miles of Line	$1,435.00	$1,029.00	$1,232.00
X8	Total Cost Per Miles Less Power Costs = Total Cost of Elec. Serv. Less Pur. Pow. & Dist. Exp. / Total Miles of Line	$534.00	$345.00	$439.00
X9	Plant / Mile = Total Plant / Total Miles of Line	$5,910.00	$3,783.00	$4,847.00
X10	Plant / Consumer = Total Plant / Total Consumers	$1,310.00	$1,182.00	$1,246.00
X11	Long Term Debt / Consumer = Total Long Term Debt / Total Consumers	$922.00	$612.00	$767.00
X12	Operations and Maintenance Exp. / Consumers = Oper. Exp. & Main. Exp. / Total Consumers	$31.36	27.21	29.29
X13	Administrative & General Exp. / Consumer = Admin. & Gen. / Total Consumers	$31.47	$26.87	29.17
X14	Interest on Long Term Debt / Consumer = I on LTD / Total Consumers	$20.67	$14.57	$17.62
X15	Margins / Consumers = Total Margins / Total Consumers	$6.22	$31.69	$18.95
X16	Consumer Accounts Expense / Consumer = Cons. Acct. Exp. / Total Consumer	$11.21	$10.44	$10.83
X17	Overhead / Consumer = Oper. & Main. + Admin. + Genl. + Cons. Accts. Exp. / Total Consumer	$74.07	$91.51	$82.79
X18	Consumer Per Employee = Total Consumer / Total Employees	164	184	174
X19	Current Ratio = Total Current Assets / Total Current Liabilities	5.58	7.30	6.44
X20	Residential Rev. As % of Total = Residential Rev. / Total Rev.	.718	.762	.74
X21	Commercial & Industrial Rev. as a % of Total = Com. & Ind. Rev. / Total Rev.	.253	.192	.222
X22	Operating Margins = Operating Rev. / Total Rev.	.062	.159	.110
X23	Admin. & Gen. Exp. As % Rev. = Admin. & Gen. Exp. / Total Rev.	.115	.099	.107
X24	Admin. & Genl. & Consumer Acct. Exp. As % of Rev. = Adm + Genl. + Con. Acct. / Total Rev.	.158	.134	.146
X25	Margins as % of Rev. = Net Margins / Total Rev.	.013	.121	.067
X26	Cost of Power as % of Rev. = Cost of Power / Total Revenues	.439	.423	.431
X27	Interest on LTD as % of Rev. = Interest on LTD / Total Rev.	.071	.054	.063
X28	Oper. & Main. as % of Rev. = Oper. + Main. Ex. / Total Rev.	.130	.104	.117
X29	Total Miles of Line	745	1,392	1,068
X30	Total Consumers	3,303	5,097	4,200
X31	Total Employees	19.38	26.30	22.84

X32	Asset Turnover =	Total Revenue / Total Assets	.274	.308	.291
X33	Return on Assets =	Net Margins / Total Assets	.006	.033	.019

Exhibit B
Transformed Variables Used in Study

Ratio Name		*Definition*
*DSC	=	Depreciation + Interest + Margins / Change in REA Debt from Previous Year
*TIER	=	Margins + Interest on LTD / Interest
*EQUI	=	Total Margins and Equities / Total Assets and Other Debts
*DTA	=	Long-Term Debt / Total Assets
*CONSM	=	Total Consumers / Total Miles of Line
RPMPPM	=	Revenue Per Mile / Plant Per Consumer
OVHFAC	=	Total Cost Per Mile Less Power Cost / Total Cost Per Mile
DPCPPC	=	LTD Per Consumer / Plant Per Consumer
OMPCT	=	Operations + Maintenance (O&M) Costs Per Consumer / Total O&M + Administration & General (A&G) + Consumer Accounts (CA) Expenses
OMPCCPE	=	O & M Costs Per Consumer / Consumers Per Employee
AGPCT	=	A & G Costs Per Consumer / O & M + A & G + CA Expenses
AGPCCPE	=	A & G Costs Per Consumer / Consumers Per Employee
CAPCT	=	CA Expenses / O & M + A & G + CA Expenses
CAPCCPE	=	CA Per Consumer / Consumers Per Employee
TPCCPE	=	O & M + A & G + CA Per Consumer / Consumers Per Employee
IPCDPC	=	Interest on LTD Per Consumer / Long-Term Debt (LTD) Per Consumer
MPCIPL	=	Margins Per Consumer / Plant Per Consumer
*CURAT	=	Total Current Assets / Total Current Liabilities
*RRTR	=	Residential Revenue / Total Revenue (TR)
*CIRTR	=	Commercial & Industrial Revenue / TR
*OPMTR	=	Operating Margin / TR
*AGTR	=	A & G Costs / TR
*AGCATR	=	A & G + CA Costs / TR
*NETMTR	=	Net Margins / TR
*POWTR	=	Cost of Power / TR
*ITR	=	Interest on LTD / TR
*OMTR	=	O & M Costs / TR
EMPLM	=	Total Employees / Total Miles Of Line
*TRTA	=	TR / Total Assets
*MGNTA	=	Total Margins / Total Assets

**Same as the original variables*

Exhibit C
Results of Transformed Ratios

	Merged Group			Unmerged Group			Both Groups	
Ratio	N	Mean	Std. Dev.	Mean	Std. Dev.	N	Mean	Std. Dev.
DSC	37	1.142	.918	2.346	1.68	74	1.744	1.475
TIER	37	1.152	3.476	8.37*	16.63*	74	4.761	12.47
EQUI	37	.181	.153	.374	.240	74	.278	.222
DTA	37	.773	.174	.584	.242	74	.678	.230
CONSM	37	5.14	4.13	3.67	2.19	74	4.40	3.365
RPMPPM	37	.239	.136	.258	.140	74	.248	.138
OVHFAC	37	.443	.127	.422	.133	74	.433	.130
DPCPPC	37	.686	.221	.488	.220	74	.587	.240
OMPCT	37	.418	.121	.422	.114	74	.420	.122
OMPCCPE	37	.218	.158	.166	.108	74	.192	.137
AGPCT	37	.425	.116	.401	.106	74	.413	.111
AGPCCPE	37	.238	.198	.172	.139	74	.205	.173
CAPCT	37	.156	.063	.154	.063	74	.155	.063
CAPCCPE	37	.079	.054	.061	.046	74	.070	.051
TPCCPE	37	.535	.384	.514	.783	74	.525	.613
IPCDPC	37	.022	.010	.025	.016	74	.023	.013
MPCIPL	37	-.016	.025	.003	.025	74	-.007	.025
EMPLM	37	.035	.035	.0004	.002	74	.017	.030
CURAT	37	5.58	5.39	7.30	9.43	74	6.44	7.68
RRTR	37	.718	.213	.762	.133	74	.740	.178

Exhibit C
Results of Transformed Ratios

	Merged Group			Unmerged Group			Both Groups	
Ratio	N	Mean	Std. Dev.	Mean	Std. Dev.	N	Mean	Std. Dev.
CIRTR	37	.253	.217	.192	.131	74	.222	1.82
OPMTR	37	.062	.157	.159	.076	74	.110	.132
AGTR	37	.115	.049	.099	.032	74	.107	.042
AGCATR	37	.158	.061	.134	.036	74	.146	.051
NETMTR	37	.013	.150	.121	.069	74	.067	.128
POWTR	37	.439	.150	.423	.143	74	.431	.146
ITR	37	.071	.035	.054	.037	74	.063	.037
OMTR	37	.130	.125	.104	.035	74	.117	.092
TRTA	37	.274	.137	.308	.162	74	.291	.150
MGNTA	37	.006	.027	.033	.017	74	.019	.026

**Random sample included one firm with a TIER of 81.0 (firm had little long-term debt) which significantly distorts the representativeness of this ratio.*

Jim Boatman, CFC
Director, Program &
Planning Analysis

CFC'S PERSPECTIVE

- Consumers have changed. If lights don't come on, we will hear from the member.
- We must respond to members' needs.
- Different membership - we must learn how to deal with them.
- How do you compete effectively when giving a product to the public? Strong reliability at acceptable rates.
- CFC's study had similar findings as Dr. Herriott.
- Strength of management is determining factor (when merging). Must have good, efficient people managing system.
- CFC has done a lot of merger studies in last five years. Not very many are successful. Board, personnel, management - strong impact in considerations.
- 8 1/2% improvement is equivalent to one months' free bill.
- One real problem - must learn how to get around "people" relationships in order to merge systems.
- CFC has a video available depicting how they feel about mergers. Most statewides have a copy.
- Consolidation - a look at three systems. (Rappahannock Electric Cooperative, Eastern Illinois EC, and Iowa Lakes EC).

  Bruce Bosworth, Iowa Lakes EC, shared accomplishments of his sytem as a result of merger/consolidation:

  Voted in 1985; accomplished in 1989.
  Declining membership (peaked in 1980).
  39 directors originally - 29 now - (attrition) - will have 14 by August 1990.
  Strong leadership among directors - accepted their responsibility.
  Enhanced reliability of service and ability to compete.

RESEARCH PROJECT SUMMARY AND WRAP-UP

Wayne Johnson
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Borden, Indiana 47106

Moses led the children of Israel out of Egypt into the wilderness and desert. After 40 years of wandering, a team of scouts was sent over the Jordan to scout out the Promised Land.

The majority report of the scouts (10) was negative. "It's a land of giants. We are outnumbered. We can never occupy the land!"

A minority report (2) said: "It is a land of milk and honey. It is fantastic! And...it's ours for the taking!"

The minority report was finally accepted and Joshua led a small band of believing visionaries to take the land. That army was willing to give their lives to make that vision a reality.

You remember the story. Joshua used highly unorthodox methods to take the City of Jerrico (trumpets and marching).

Those visionaries were successful. And, Moses died in the wilderness - one river short of the Promised Land.

I hope all of you are drawing some parallels between this Old Testament event and the rural electric program.

We have been operating in the wilderness.

Little wonder then that we have a crisis of identity and purpose at many statewides and NRECA.

Bob Bergland knows he can take off in any direction and some of us will follow - but not all!

We have been listening to the majority report about the "giants" in the Promised Land. We are unwilling to leave Moses in the wilderness and move on.

Ten years ago, our friend Tony Pisano studied our structure and said it wouldn't last. It is designed to self-destruct. Today, we are proving him correct...and some of us are looking for a resurrection of Moses to lead us again.

We are poor biblical scholars. Our exegesis is incorrect. The resurrection is in the final days - not today.

Doyle's comments brought to mind the periodic exodus of the lemmings to the sea and death. The realities of competition; the opportunities for survival; the advent of takeovers; the member unrest; the bankruptcies; the reneging on commitments.

All of these "new realities" have stirred our boards and managers to ask the burning question of the hour: "Do you know any good restaurants in the area?"

Family Circus: "Who broke the pitcher? Not me."
"Who tracked in mud? Not me."

Like Miss Peggy: "Moi oi?"

We have structured ourselves so the "not me's" of this world can thwart the acations of the Joshuas. Ask Jim Kiley, Doyle, Mike, and several others in the groups for examples.

Local boards, G&T boards, and too many statewide boards are becoming dominated by the "not me" directors and managers. They claim to reflect a membership - "not in my backyard" and "what's in it for me?"

Most suffer from the "drawbridge syndrome" - they have theirs - pull up hte bridge - no one else need apply!

Today, we have hared reports which have given us important inforamtion, but do they really tell us about the promised land? Or...are we trying to predict the future from the coroner's postmortem?

I suggest to you that if Tom Watson had used this approach, IBM would never gotten beyond the punch card. This is linear thinking - not systemic.

This group thinks systemically. We are confident of the future - the Promised Land is loaded with potential and is truly a "land of milk and honey." We are giant killers!"

But...we will have to find the courage to trust the vision we all share. We know we can do better. We can operate more efficiently - provide better service - and prove a consumer cooperative can meet the challenges of a world economy.

How can we find the courage? I don't have a big solution. In 1982 Richard Stanley outlined, "The Common and Special Problems of Rural Electric Cooperatives." He ended on this note: "I think it is important that we search for survival in many small ways - in the daily working out of <u>our responsibilities</u>."

The challenge I give you is this: The major task of the 1990's is the recovery of personal and corporate responsibility. We are being destroyed from within by the "not me's."

The challenge for NRECA: Lead us in a recovery of personal and corporate responsibility. Perhaps the Clyde T. Ellis Award should recognize the cooperative - the manager - the Board - who had the "guts" to do the right thing - regardless of the consequences. Recognize those who had a vision to occupy the Promised Land.

Michael Lebrouf: "The greatest management principle in the world: That which gets rewarded - gets done!"

We are reaping the harvest of all our "not me" actions of the past. Get our your trumpets - get on your marching shoes. There are many Jerricos around which we must march.!

National Rural Electric
Cooperative Association

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May 18, 1990

TO: NRECA Directors, Statewide Managers & G&T Managers

FROM: Bob Bergland, General Manager

SUBJECT: Current Activities

BUDGET SUMMIT TALKS START DOWN A LONG ROAD -- With one meeting at the White House and another on Capitol Hill under their belts, budget summit conferees acknowledge that any budget summit agreement will come only after long, tedious discussion and debate.

Neither side has dared mention the dreaded "T" (tax) word, and the combination of budget cuts and revenue "enhancements" necessary to meet Gramm-Rudman-Hollings deficit reduction targets became even more elusive this week, as estimates of the budget deficit for FY 1990 soared from a late winter estimate of $105 billion to as much as $160 billion this week, prompting some to think that the Gramm-Rudman targets may be changed.

We continue to watch this process, ever wary that anyone or any program could be victimized in a tempestuous, late night, closed door negotiation.

CLEAN AIR ACT UPDATE -- The House Ways and Means Committee this week got a chance to look at the Clean Air bill, H.R. 3030, after seeking jurisdiction by arguing that a number of fees in the bill could be considered taxes. The Committee approved a proposal that addresses what it considers to be one tariff and five tax provisions in the Energy Committee-approved bill. The amendment would delete or modify any provision that would impose a federal fee or authorize the EPA to impose a fee unless it was characterized as a penalty or was designed solely to compensate the government for services provided.

The Ways and Means amendment also would delete a provision that would authorize the states to impose a fee on the import of products that contribute to smog formation and change a $2,000 per ton fee on utilities for excess sulfur dioxide or nitrogen oxide emissions to a penalty.

Following its meeting yesterday morning in which the Ways and Means Committee put together the proposed amendment, the House Energy Committee filed its long-awaited report to H.R. 3030 (which the Energy panel had approved on April 5).

The Ways and Means Committee amendment is expected to be offered during House floor consideration of H.R. 3030, which is expected to take place sometime next week.

NRECA/CFC TERRITORIAL INTEGRITY COMMITTEE HEARINGS -- NRECA/CFC hearings on territorial integrity held in Minneapolis, Denver and Atlanta were completed this week. I felt that the hearings went very well with over 200 attendees and more than 50 witnesses from 30 states. The comments were excellent although they were by no means consistent. Probably the greatest disagreement involved whether or not national legislation should be recommended. The committee will be working to assimilate the additional recommendations which we heard this week.

RURAL DEVELOPMENT CONFERENCE DEADLINES EXTENDED -- The 1990 Rural Economic Development Conference, sponsored by REA and titled "REA Borrowers -- Providing Local Leadership for America's Rural Development," is scheduled for Denver July 12 and 13.

In an earlier bulletin, REA had announced that the deadline for room reservations at the Stouffer Concourse Hotel was May 18 (today); however, we have received word that the deadline has been extended to June 8. This promises to be a very fruitful conference, and I urge you to encourage the systems in your area to send someone.

Again, systems should send a check or money order in the amount of $30 for each person who will attend (payable to "REA A A"), along with the name and job title of the attendee and the name and address of the cooperative to Robert Bacon, REA, Room 4036-South Building, U.S. Department of Agriculture, Washington, DC 20250.

CABLE TELEVISION LEGISLATION -- Staff reporting to Rep. John Dingell (D-MI), Chairman of the House Energy & Commerce Committee, have floated a draft cable bill that includes weak language on third-party packaging. NRECA has spoken with the staff of Rep. Billy Tauzin (D-LA), the sponsor of satellite packaging legislation, and they have assured us that Chairman Dingell has told Rep. Tauzin that they will work together to achieve satisfactory language to assure fair and equitable pricing and access to cable programming for independent satellite packagers like NRTC.

In a related matter, the Senate Commerce Committee has scheduled a vote on their cable legislation on June 7. Carolyn Herr Watts is working with Sen. Al Gore (D-TN) and others to include provisions allowing packagers like NRTC access to cable signal on nondiscriminatory prices, terms and conditions.

STATE LEGISLATORS CONVENE IN WASHINGTON -- The National Conference of State Legislatures (NCSL) convened the semi-annual state-federal assembly here this week and took up a number of issues that are of interest and concern to rural electric systems.

In a half-day workshop prior to the beginning of the session, the state legislators discussed the development of alternative motor fuels. Central to the discussion was the policy adopted by the NCSL that alternative fuels should not be subject to federal taxation. Needless to say, representatives of the petroleum and natural gas industries had less than complimentary comments on that policy, as did representatives of the Federal Highway Users Association.

Spokesmen for the natural gas industry were somewhat aggressive in their assertions that natural gas can take care of all our fuel needs for the foreseeable future, and one gas spokesman referred to the clean coal technology program as a "$2 billion boondoggle." (Yes, that is a direct quote.)

Another highlight will be a plenary session tomorrow morning, when delegates will consider the National Energy Strategy. NCSL intends to submit a fairly detailed policy statement to the Department of Energy on national energy strategy, and the controversy tomorrow morning is expected to center on the organization's position on the development of nuclear power.

This morning, a session on tax-exempt financing was scheduled, with Rep. Beryl Anthony (D-AR) slotted to present the Anthony Commission report. Apparently, the Anthony Commission was established some time ago to study this issue. Also, this afternoon, representatives of our across-the-street neighbors, the Brookings Institute, will discuss the merits of a national value added tax.

Lloyd Ernst, of our Government Relations Division, is covering the meeting, and next week's Current Activities will include a more detailed account of the proceedings.

S&P DOWNGRADES CFC -- In a news release issued May 11, CFC reported that Standard and Poor's (S&P) rating agency has downgraded ratings assigned to CFC's direct issue securities and guarantees. The downgrades were as follows:

Collateral Trust Bonds to A+ from AA
Medium Term Notes and guarantees to A from AA-
Commercial paper to A1 from A1+

S&P cited the potential long-term credit exposure of CFC to the Deseret Generation and Transmission Cooperative and Colorado-Ute Electric Association, Inc., and deterioration in the credit quality of some unnamed G&T co-ops to which CFC has loans and guarantees outstanding. S&P further highlighted the fact that even though CFC's exposure to G&T systems had declined to 40% of its portfolio, 17% of this portfolio is considered to be below investment grade by S&P.

In its announcement, S&P also highlighted CFC's inherent strengths such as its broad membership base, repricing ability, general stable operation, and limited exposure to ultimate loss in both its loan and guarantee portfolios. These reflect the fact that only 2.1% of the portfolio is unsecured.

Truman Brandt, CFC's Chief Financial Official, said, "While we are disappointed with the downgrade, CFC believes that the effect in the financial markets will be minimal inasmuch as investors have been anticipating a downgrade since the ratings were placed on CreditWatch. We are more concerned with the severity of the rating action and question whether the reaction is appropriate, particularly in view of the build-up of loss reserves, the strength of the wholesale power contract, the rights and remedies available to CFC under the all-inclusive mortgage shared with REA, the financial flexibility of CFC to generate margins and, above all, the continued strong support of CFC's membership.

FAVORABLE VERDICT IN STRAY VOLTAGE SUIT -- The Wisconsin Electric Cooperative Association (the statewide) reported this week that on May 4, a jury found that 90 percent of the damages from stray voltage were the fault of the farmer and milking equipment installer, and 10 percent the fault of the St. Croix County Electric Co-op. Under Wisconsin's laws covering negligence, awards are made if defendants are found to be more than 50 percent responsible.

The WECA Condenser reports that there are other motions to be filed in the St. Croix case, which has dragged on since 1985, but for the moment, counsel and the co-op are quite satisfied with the jury decision.

ACRE CONFUSION CONTINUES -- Marshall Clark of the Kansas statewide this week furnished our ACRE folks with a mailing from the Alliance for a Clean Rural Environment welcoming Harold Anderson, manager of Smoky Valley Electric Co-op, Lindsborg, KS, as a "new ACRE member."

You may recall that the Alliance for a Clean Rural Environment is an organization put together by a number of large chemical and fertilizer companies to help farmers and others combat contamination of groundwater runoff.

We have absolutely no qualms about endorsing this noble venture; however, the use of the acronym ACRE is causing confusion among our members, particularly since both ACREs have essentially rural constituencies.

Our ACRE has been filed with the federal trademark office and there is no other "ACRE" mark filed. Our counsel, Mr. James Bikoff, of the law firm of Baker and Hostetler, has sent a "cease and desist" letter to Mr. Pat Haggerty, the Executive Director of the Alliance, giving him six months to phase out his use of ACRE.

Counsel tells us that the next thing we have to do is to show that there is reason to believe that their ACRE could be confused with ours.

I would ask you to help by providing ACRE Director Bob Dawson or ACRE Assistant Mike Whelan with any examples of the Alliance's promotions to any individuals who might be eligible to be a member of the real ACRE, the Action Committee for Rural Electrification. Also, if you receive information about meetings of the Alliance in your area, please relay that information as well. Dawson's phone number is (202) 857-9570, and Whelan's is 857-9535.

We have worked too hard from since 1967 to make ACRE the effective, respected PAC that it is to have some johnny-come-lately upstart jump in and confuse things.

GOVERNMENT LIABLE IN DROWNING, JUDGE RULES -- The Atlanta Journal and Constitution reported Thursday that the federal government is responsible for the death of a fisherman caught by waters released from Lake Lanier to generate electric power. However, the government is not liable for a drowning in which water was released for flood control.

"The U.S. Army Corps of Engineers, which controls the release of Lake Lanier's water through Buford Dam into the Chattahoochee River, was negligent in both drownings because the corps failed to provide sufficient signs and other warnings to fishermen and others that the river could rise suddenly, Judge (Jack T.) Camp wrote," the Constitution reported.

However, the government must pay damages to only one of the fishermen in one instance, and not the other. In the case of the release for flood control, the waters were released to lower hazardously high levels at Lake Lanier, and the Flood Control Act grants immunity from liability in flood control efforts. In the case of the release of water to generate hydropower, "it (the government) is not entitled to the benefit of the bargain struck by (the law)," according to Judge Camp.

HEART PROGRAM KIT AVAILABLE -- Copies of the 1990 National Heart Lung Blood Institute's Heart Program Kit are available in limited numbers from the National Rural Health Network.

The kits can help you put together outstanding programs on high blood pressure, high blood cholesterol, smoking cessation, stroke, asthma and blood resources.

To obtain a copy, call Susan Eisendrath of the Network at (202) 857-4884.

DIRECTOR ELECTION -- We have received word that our esteemed president, Jack Williams, has been re-elected to represent Maryland on the NRECA Board of Directors. Congratulations, Jack!

MARKETING CONFERENCE ACCOMMODATION UPDATE -- The 1990 Marketing Conference will be held at the Jackson Lake Lodge, in the Grand Teton National Forest, Moran, WY, June 10 - 13. Since the conference is being held on National Park grounds, accommodations are very limited. If anyone has difficulty securing accommodations, Dick Peck, the general manager of Lower Valley Power and Light, in Afton, WY (the system that serves Jackson Lake Lodge) has suggested the following alternatives.

** Colter Bay Cabins (approximately 5 miles away)
(307) 543-2855

Charles Riggins, the reservations manager of the Grand Teton Lodge Co., will assist you in finding rooms at both the Jackson Lake Lodge and Colter Bay Cabins.

** Signal Mountain Lodge (approximately 10 miles away)
(307) 543-2831

** Flagg Ranch (approximately 15 miles away)
(307) 443-2311

** Jenny Lake Lodge (approximately 15 miles away)
(307) 733-4647

If attendees prefer to camp out during their conference stay, they should call the Jackson Hole Area Chamber of Commerce at (307) 733-3316 for assistance in finding designated camping areas.

This conference will give attendees the opportunity to learn about successful marketing programs in the majestic environment of the Grand Teton National Park. Please let systems in your area know about these alternative lodging options. Questions regarding accommodations should be directed to Management Services' senior meetings planner Joan Shattuck at (202) 857-9647.

The Decade of the 90s - Challenges and Opportunities

Bob Kabat
Director, Management Services, NRECA

Rural Electric Management Development Council
Lake Tahoe, Nevada, May 22, 1990

I. "People" Challenges

A. Directors

First, let us look at some what I will call "people" challenges. The Hein attitude survey of directors indicates that almost 75% of the rural electric Directors are either retired or farmers/ranchers. The previous member attitude study NRECA did indicated that only 12% of the consumers served by rural electric systems were full time farmers or ranchers. We need to figure out ways to diversify our Boards so they're more representative of the changing composition of the membership - more representative from the standpoint of occupation, gender, age, race, etc. This won't be easy, but there are opportunities to educate those who do the nominating and point out the critical importance of doing this.

Also there are opportunities when a vacancy occurs. Under most bylaws the board can appoint a successor. You can encourage the board to use such opportunities to achieve diversification on the board and make it more representative of the composition of the membership.

A manager will face the challenge of having to deal with a board which will challenge more, question more, accept fewer things because "that's the way they have always been done", and take less for granted. They won't be a passive Board. They'll want to be more involved. The challenge will be how to do that in a productive, non-adversarial way. The use of Board Committees seems to provide the best way to do this. Other opportunities may be for Directors to make presentations at member meetings and to answer member questions at such meetings. Another opportunity for the Board to be involved is for board members to play more of a role in local community and political relations which will become increasingly important in the decade of the 90s.

But when involving directors, you have to make sure they are carrying out their basic functions, including considering and adopting policies and major plans, effectively delegating to the manager and reviewing results in key performance areas and not getting into day to day operations - which some want to do.

The manager should have strong negotiating skills in much of what he'll have to do, including relations with the Board, e.g., he'll have to negotiate with them to obtain the major delegations he should have to effectively manage the co-op. Relations with the Board in the 90's will present many new challenges.

B. The Managers

Managers of the 90s will be better educated - the Hein Survey shows 63% of all managers are college graduates or have post graduate training. The challenge a Board faces is not just to pick a well educated individual as manager, one who really developed as a technician, but an individual who is a leader, one who provides the vision needed and is also a strong manager who can delegate effectively, is skilled in team building and who can establish meaningful controls to measure the end results being achieved. A manager for the 90s must be a skilled negotiator, a manager able to deal with increasingly important community relations, relations with local political officials and also with diverse community groups in commercial and industrial development - all of which require a high level of negotiating skills.

To summarize, in the 90s Boards, in their search for a manager must look for a leader, a strong manager, a skilled negotiator, an individual able to carry out increasingly important "up and out" responsibilities. Boards need help in finding an individual with all these attributes.

C. Key Staff

Through competitive compensation plans, clear delegations which provide challenge, the opportunity for growth and development which may mean helping the individual obtain a

position in another system with increased responsibility, we must be able to attract staff which are the best and the brightest.

To accomplish this you'll not only want to do all possible to develop and challenge your present staff, but when a vacancy occurs, advertise widely and pick the best whether inside or outside the system - the best and the brightest.

D. The Members

Obviously we'll be dealing with a younger membership, one that cares less about the past but rather about what you'll be doing for them today in quality of service, rates and other services which can't be met as well by others, e.g., power conditioning equipment, home security equipment and monitoring, water and waste water, economic development to create jobs, etc.

To develop support of the members of the 90s the system will have to emphasize service excellence, where every customer contact is a "moment of truth" as SAS Chairman Jan Carlson characterizes it. This may help us overcome some rate disparity. It is interesting that in the Hein survey of rural electric manager attitudes, 78% said that service quality was more important than price in maintaining customer satisfaction, and 84% said their rural electric system can outperform their neighboring IOU in service quality.

This emphasis on service excellence will make AHP's new Gold Seal program extremely important for many systems. This is a new program where through telephone interviews the quality of service rendered by your system is compared to national standards in areas such as dealing with the new customers, customer service during outages and customer service in answering inquiries, complaints and requests for information. Qualifying systems will receive "Gold Seals" for each area where they meet standards of excellence.

In the 90s we'll face an increasing challenge of communicating effectively with a changing membership. To do this you must know the demographics of your membership so you can take this into account in your newsletters, inserts in statewide publications, bill stuffers, annual reports, etc. If your membership is composed primarily of retired people and blue and white collar wage earners, the emphasis in your publications should be very different than if the members are primarily farmers/ranchers.

Also you'll have to take these demographics into account when you determine when and where you're going to hold your annual and other member meetings and what type of program you'll offer. These programs should be more professionally developed with

excellent visuals carefully developed, scripted and presented, using a skilled facilitator to lead the discussion with the members and who will encourage them to raise their questions and comments.

The membership of the 90s won't be a passive membership but a membership which will want to participate and be involved. How can we do this? There is no better approach then a Member Advisory Committee with assigned tasks which will make recommendations to the manager or board or an ad hoc or special Committee to provide advice for a one time only specific purpose, e.g., to critique your communications with the members, critique your annual meeting, etc.

The functions of any member advisory group have got to be carefully spelled out so they don't get into the functions of the Board or into day to day operations.

One rural electric system described this in a board policy as follows:

Authority and Functions

1. The Committee is only advisory to the Board - it does not make decisions for the Board and membership but only make recommendations to the Board.

2. Its role shall be primarily to advise the Board on issues the Board asks it to consider which will mainly be in the areas of member relations and member needs.

3. The Committee shall not get involved in issues which affect the day to day management or operations of the Cooperative.

One of the greatest challenges of the 1990s is to effectively communicate with and involve the members so they feel they really do own and control the co-op, that it is their co-op. In the Hein Attitude Study of rural electric managers, 45% of the managers said that co-op ownership can overcome a 10-20% rate differential.

II. "Thing" Challenges of the 1990s

A. Competition

One of the greatest challenges will be being able to compete in an increasingly competitive environment - competition from other sources of fuel and other utilities, particularly merged mega-utilities. This makes it even more necessary that you achieve all we discussed - strong leadership and management, strong member support, community involvement, strategically planned marketing programs, service excellence, a Board representative of the composition of a changing membership, etc.

B. Territorial Integrity

You'll face increasing territorial challenges, not only from municipal systems but from aggressive power companies who from an economic and business standpoint realize that the only way they can expand is into rural electric territory. What are the implications of this? It means we have to develop stronger

political ties locally, be more active in our communities, not only in economic development but in community service or outreach to show the community we care, we want to help solve their community problems.

Managers, key staff, and Directors will have to get much more involved in county, city, and town political relations because increasingly decisions made in "city hall" will affect us.

You will have to be a strong negotiator. Many territorial problems will be solved by the give and take of negotiations. Being a strong negotiator will be one of the most important management skills of the 1990s.

To meet the territorial challenges of the 1990s, we'll have to be actively involved in our communities, develop strong local political alliances, be leaders in economic development, give top priority to service excellence and through diversification meet changing member needs and try to be as rate competitive as possible.

C. Merger/Consolidation

In the 1990s we will have to take a look at merger/consolidation not just for the cost savings to be achieved but to improve the quality of service through having more crews to respond quickly to a major outage and perhaps being better able to more effectively deploy these crews, being able to provide more services to meet changing member needs, having stronger staffs, especially in the management, professional-technical areas, as well as having more resources available to compete with what will be increasingly aggressive power companies as well as power companies merging or consolidating into mega-utilities.

The new Shearson Lehman Hutton March 14, 1990 study, "Electric Utilities: The Case for Consolidation" shows 139 electric utilities consolidating into 52 groupings with annual cost savings of $3.613 billion, an average annual savings per customer of $49.66, an average cost reduction of 0.193 cents per kilowatt-hour and a one-time savings from surplus asset liquidation of $15.9 billion.

The study states:

- The competitive forces that were germinating in early 1988 are increasingly apparent. Utilities large and small are cutting back and paring down, but how far can small companies go? Bidding to construct new generation is a way of life in 30 states, and more are sure to follow. . . .

- Transmission access has been part and parcel of recent FERC decisions. . . .

- Importantly, the new FERC chairman, Martin Allday, recently encouraged industry to propose changes to increase wholesale transmission access. . . . [1]

Cost Competitiveness: The Driving Force Behind Consolidation . . . .

* * * * *

Since the engineering study proves beyond a doubt that mergers are economically viable, it must now be a regulatory obligation to rate-payers to seek the nation's best alternatives for low-cost power.

While the amount of cost savings will vary according to consolidation choices, most savings will still emanate from lower costs associated with generation pooling, more efficient plant maintenance and retirements, and more efficient processing of customer accounts.

Pooling Economies. The largest economies to be derived from consolidation, in most cases, are estimated to result from pooling -- the ability to use a more economic generating plant mix in the consolidated service area -- during periods of low demand.[2]

Thought is being given to the consolidation of distribution systems in the rural electrification program. Shouldn't we also explore whether there might be even more savings in merger/ consolidation where we're incurring 70% of our costs -- in generation and transmission. The Shearson Lehman Hutton study states, "In our study, the most impressive economy of scale

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[1]Shearson Lehman Hutton, "Electric Utilities: The Case for Consolidation", March 14, 1990, Tirello, E.; Page 7

[2]ibid; Page 10.

benefits were found to emanate from more economically efficient utilization (through increased pooling) of generating plants and management costs."[3] Shouldn't we consider merging or consolidating G&Ts into regional G&Ts, or in some sort of structure which permits a sharing of resources in areas such as planning, procurement, construction management, dispatching, generation, transmission, etc. Consolidation/merger of G&Ts into regional organizations or the sharing of resources through some sort of a common services organization may result in more cost savings than the merger/consolidation of distribution systems. Also doing this may enable us to compete more effectively in the 1990s and beyond.

D. Community and Economic Development

To do this effectively requires some professional staff to work with community development groups, to follow up on and cultivate leads and to make sure professional and technical advice is made available as needed, not only for new businesses but to help existing businesses expand.

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[3] ibid; Page 8.

Innovative approaches are required as well as the ability to work with diverse groups. One co-op is working effectively with a community foundation which has provided industrial parks to attract new businesses. Another co-op is building a large industrial park with a developer. The city where the park is located insisted the co-op be involved before it would grant a permit. In some states, there are joint cooperative/municipal economic development groups. An increasing number of co-ops have representatives to work with existing businesses to help them grow and expand.

E. Community Involvement

A new challenge we face in the 1990s is community outreach or involvement. We must prove we believe in the community, that we care - not because it will benefit us economically but because it is right. By doing this we're proving our roots are deep in the community. We're there for the long haul. We want to be perceived as making some investment in the community by helping in a limited way to help solve some of its problems.

Increasingly rural electric systems are doing this. Some examples include "rounding up", where members' bills (with their permission) are rounded up to a predetermined higher amount. The funds raised in this manner are administered by a foundation

whose trustees are appointed by the co-op's Board of Directors, and are used for food, education, and housing. Another example is "Project Care", where members can add a specified amount to their bill, which in turn goes directly to those needing assistance through community action agencies. Another example is a co-op which has community service representatives to help the poor find sources of funds for some of their most basic needs - housing, adequate water and waste water, etc. The co-op's community services representative knows where funding is available, and even though it may be very limited helps the member apply for it. Community service like this may not build revenue, but it builds member support and demonstrates to the community that the co-op cares.

III. The Primary Challenge of the 1990s

The primary challenge will be a much different utility industry - more deregulated, with more freedom to compete through transmission access, bidding for bulk power supply, cogeneration, diversification, etc. We'll also face increasing competition from more aggressive power companies and consolidated mega-utilities. We won't be able to compete to survive unless we change dramatically in the many ways discussed here.

Strategic Planning Implementation

Dr. Martin Lowery, NRECA
Manager, Consulting & Training

- Spent a lot of time thinking about survey and letter from Council. We want to be A or A+ in all we do. Know we need to improve. Charges need to be confronted and dealt with.

- Leadership - visionary management - effective delegations and motivators - good negotiators.

- What kinds of things are important in community relations?

- Directors should be involved in activities meaningful to the cooperative.

- What balance should we achieve? We have to avoid conflictual environment between directors and management.

- Must look at utilizing our resources and where are our enhancements.

- Discussed new RecNet program - encourage directors to see the program.

- Director programs - feedback says we need to be more regionally focused.

- Phrase "public accountability role" - boards will be held accountable. Micro-managing - these courses generate positive responses from directors.

- "Episodic" involvement.

- Management evaluation guide - MIP will completely review the guide to assist in updates. Will be working on this next couple months.

- G&T director training - most difficult program to work on (least satisfied with this program). Want to do everything we can to help solve problems in this area.

- Survey results - not happy with general management evaluation of NRECA Management Services. Aware of managers' time constraints. We do want to be able to work effectively in small group round table environment to discuss key issues.

- Board/Management Relations, Board/employee relations, Board/community relations.

Kim Colberg
Linn County REC
Marion, Iowa

Computer Aided Drafting
Presented to the Rural Electric Management Development Council
May 1990

I appreciate the opportunity to talk with you about computer aided drafting as we have applied it at Linn County REC. To give you some idea about our cooperative, we are located in east-central Iowa, near Cedar Rapids and Iowa City. We have slightly more than 10,000 members and added about 350 new services in 1989. We have 39 full time employees.

To give you a little more flavor of our cooperative, Warren was kind enough to draw our cooperative airplane on CAD (OH of space shuttle). I had some difficulty convincing the directors that the purchase of this air craft was a necessity, but after a spin around the world they were convinced that the expenditure was justified. It doesn't have the best fuel economy and we run into an occasional computer problem that delays our trips for three weeks, but for the most part we are pretty pleased with performance.

Well, we didn't always have the luxury of special equipment. For years, our cooperative sent our maps to an engineering firm for updates. We would red pencil our new services, changes in substations, and upgrades to our lines, send them off to the firm, and WAIT. They would send the updates to us - already outdated. It usually took two or more times of reviewing and returning before we got the maps printed.

This was an expensive process. It was not just the labor from the engineering firm, but it was the review time that our people spent after each update. Our crews kept calling headquarters for the location of accounts that were only being updated on the engineering map and the operations map.

The maps kept getting bulkier. The scales were different for subdivisions and when the subdivisions grew together, our maps did not. We were also faced with the prospect of redoing our maps because we were running out of account numbers in our high density areas. This change would be expensive because some maps had to be recreated.

Another thing working in our favor was an new engineering tech who was very interested and experienced in personal computers. It was with his guidance and the help of a summer help college student that we tackled the job - for three summers. The crews had direct input as to what changes were to be made in the new maps. Our objective was to keep one map, not separate maps for sectionalizing and account locations. The troops were becoming slightly restless by the time we distributed our initial copy. You realize how bad maps are when line crews start telling you that the maps are wasting their time!

I'm happy to report that since the maps were computerized in-house, they have been revised faithfully and the pages replaced during safety meetings. The maps have gone from 130 PAGES TO 77 PAGES. There are over 20 layers to date including territory lines, sectionalizing lines, base maps, URD, overhead, account dots, etc, etc. The number of available layers far exceeds what we will be able to utilize.

Our most recent project is that of scanning our existing staking sheets and putting this information in another "layer" of the map. In time, we hope that staking sheet information will be accesible by zooming into an account dot. Instead of looking through pages of staking sheets, you call the information up onthe computer. This is a long term project for us, but one that we feel will provide personnel with instant access of information. Eventually, if its not being done somewhere already, staking sheets will be done in the field on a lap top and transferred to the computer used for CAD.

Like any other computer project, as you learn how to use the software, you learn more applications. Among the requests for CAD are Member Service Personnel, special economic development projects, the engineers, even our county engineers and a local fire department have shared and taken advantage of the information that we have available.

For those of you interested in the hardware, software and the costs of these items, I have a list of the equipment that we are currently using. There is no magic in these things. There are plenty of options available. I would caution you about two things, however.

One, size and speed of the computer makes a world of difference in what you do with CAD. We went through two other computers before the one you see on the overhead. If you are committed to the project of in-house mapping, don't skrimp in the dollars when starting the project. The nice thing about outgrowing the other two was that a couple of us now have a better computer than we would have otherwise.

Two, the choice of a reliable piece of software with constant revisions and good support is critical. AutoCAD had proved good for these reasons. Certainly the revisions cost dollars, but generally the benefits that you receive with the update outweigh the investment. Our power supplier has chosen to use AutoCAD and we hope to be able to take advantage of their information in the future. In case we run into a task requiring more person power than we have available, shipping the existing information to a consultant with AutoCAD software and experience is not difficult.

I've put together a list of advantages and disadvantages to in-house CAD. The biggest advantage is the provision of map updates with little effort. The cooperative has the ability to provide drawings for presentations, brochures, etc. upon request. Layering of the maps allows a great deal of flexibilty. You can put as much information on your maps as desired depending on the situation. Access to the staking sheet information. Exchange of information with other cooperatives, local agencies. Ability to combine maps with simple commands. We have combined all of our maps to provide a simple key map for REA. Reduces your dependency upon a consultant. Our initial outlay by converting the maps to AutoCAD was by far cheaper than it would have been through a consulting firm. CAD certainly is tedious, but no where near as tedious as drawing maps by hand. Its also more forgiving when a mistake is made.

Disadvantages: Unless you are willing to devote a full time person to getting the maps converted to CAD, it takes time. It takes a very dedicated employee and time to learn the advantages of AutoCAD. We were fortunate to have the employee and to find an exceptional college student who loved to play with the computer and the software. If a system is stagnent and it is expected to remain stagnent, the current mapping system is probably adequate. The cost of the equipment and the software will run in excess of $ 25,000. Depending on how you convert your mapping system, labor costs may be expensive.

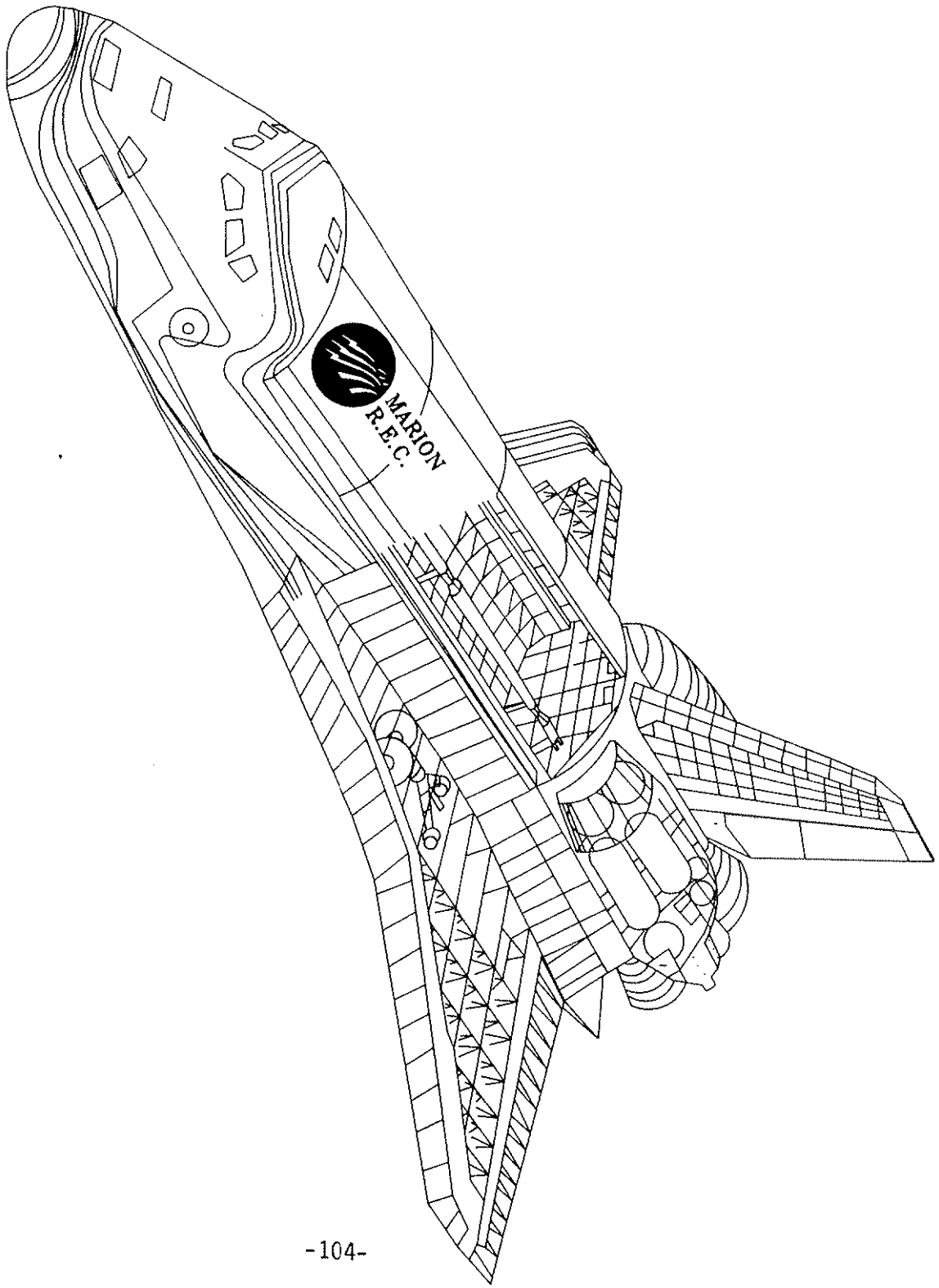
In conclusion, the map conversion has worked very well for us. I recall our first discussions of this matter at a special meeting held at the request of our consultant. Their concern was that U.S.G.S. maps were very expensive and that we would not get the detail we would desire if we did not use U.S.G.S. Since that time, U.S.G.S. pricing has dropped dramatically and is very practical for CAD applications. As the use of CAD continues to grow, related applications will continue to improve.

Computer Aided Drafting
REMDC Meeting
Lake Tahoe

May 1990

REC
Marion

EC Iowa
Cedar Rapids
Iowa City
10,000 Members
39 Employees


MARION
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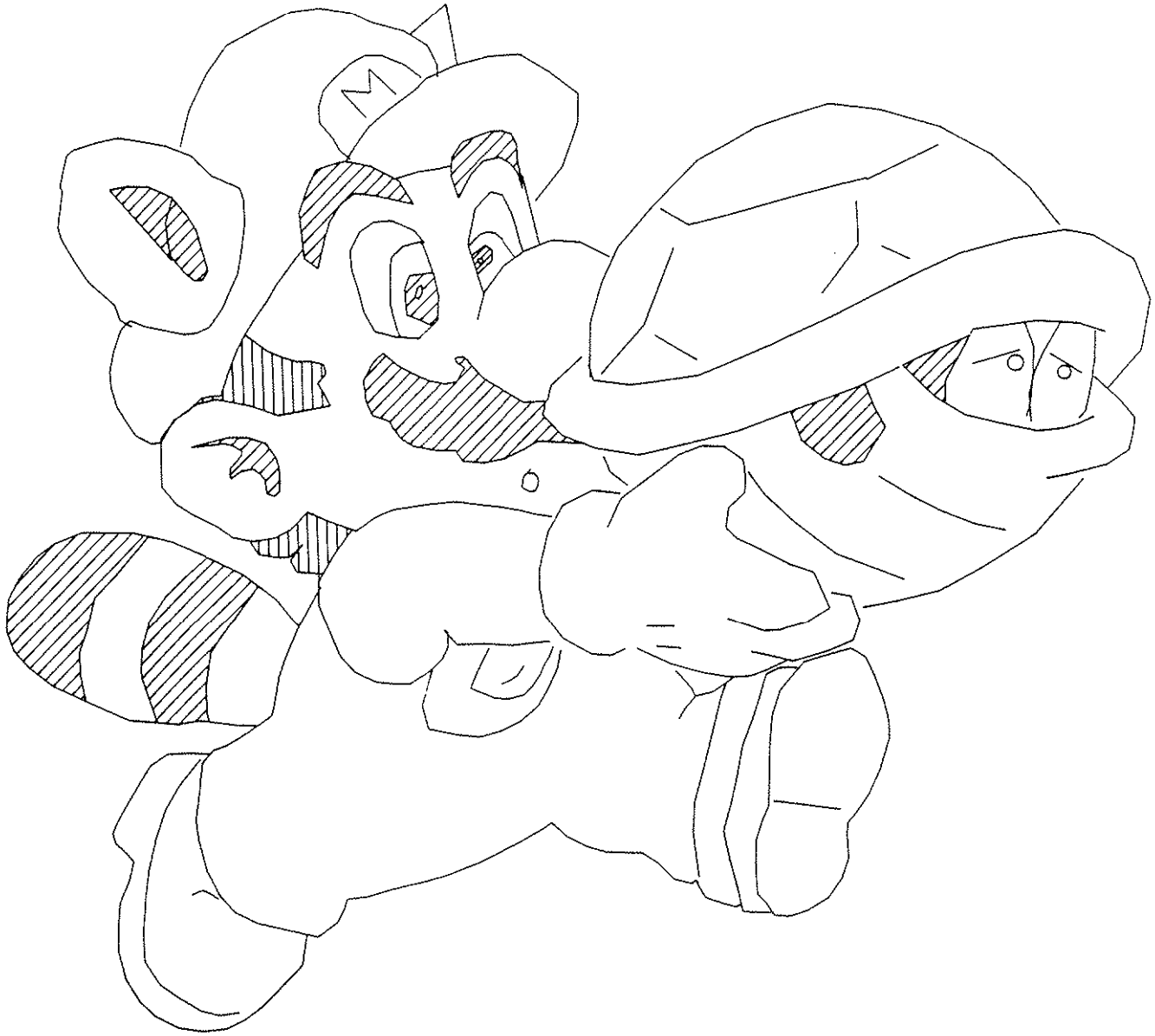
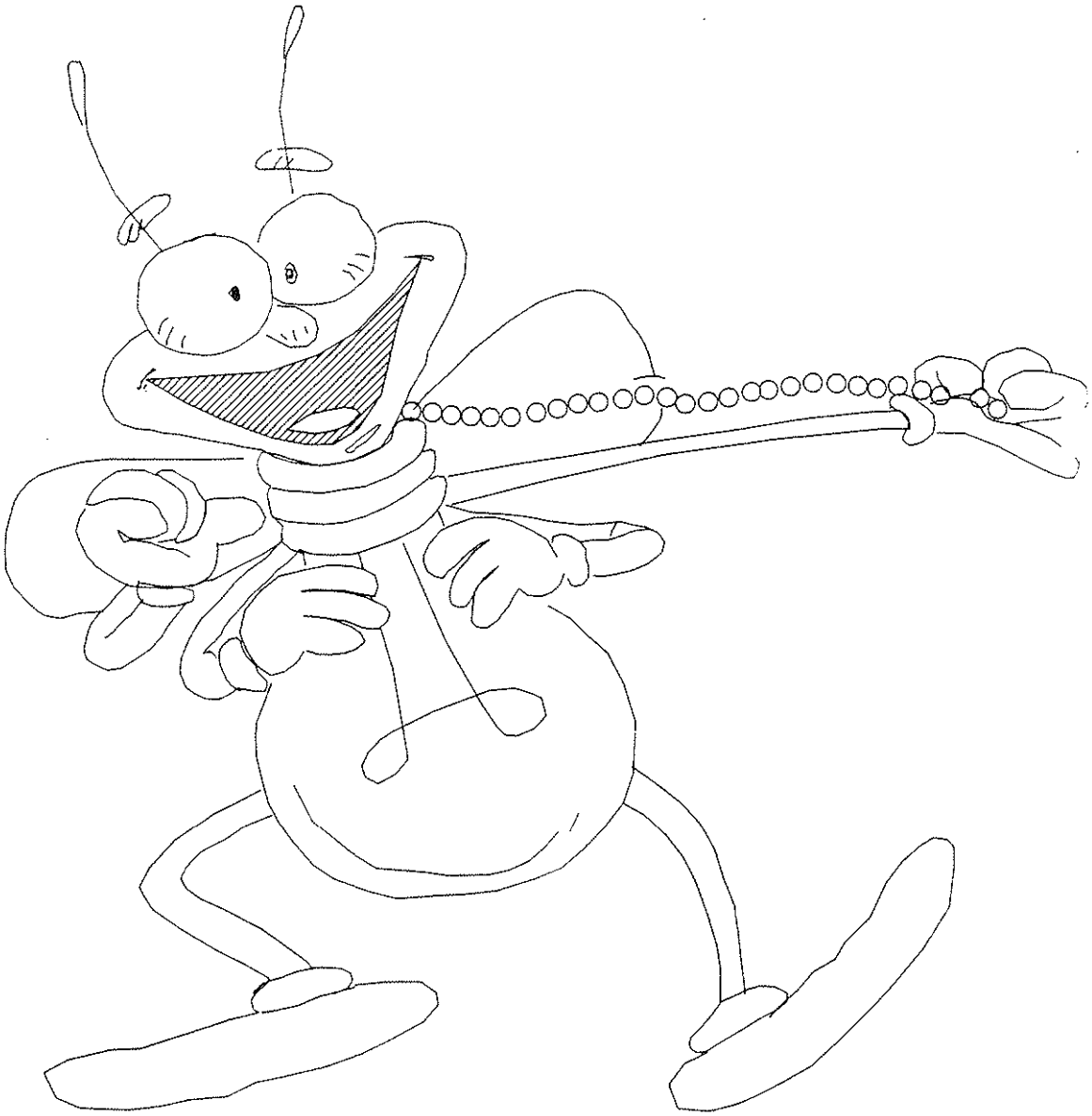




Why CAD?

Ease of update

Reduce costs

Productivity

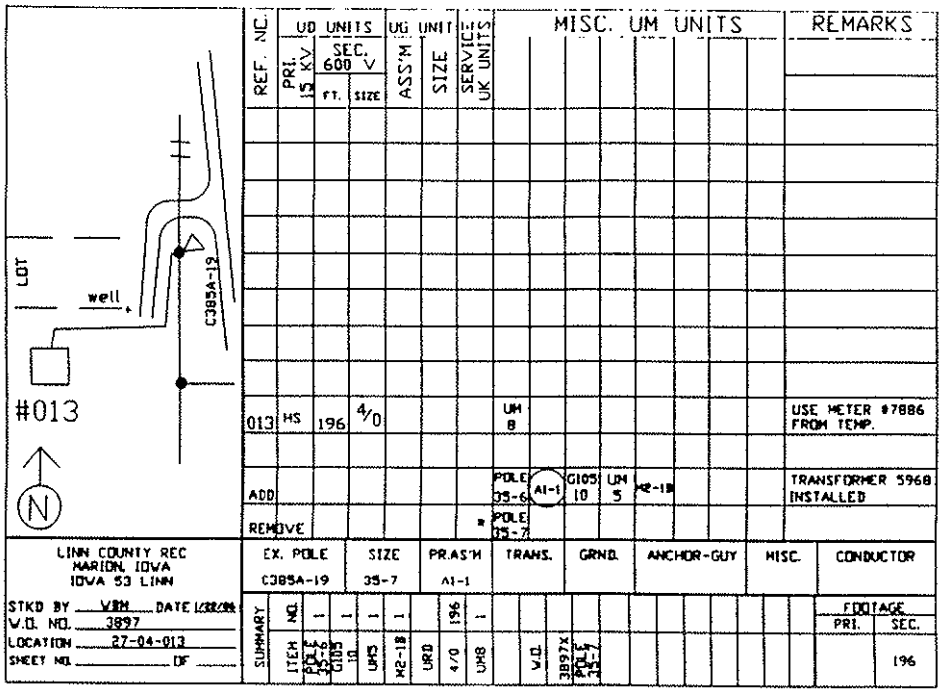
Organize maps

How we could do it

Engineer tech knowledge

Part time help

Feedback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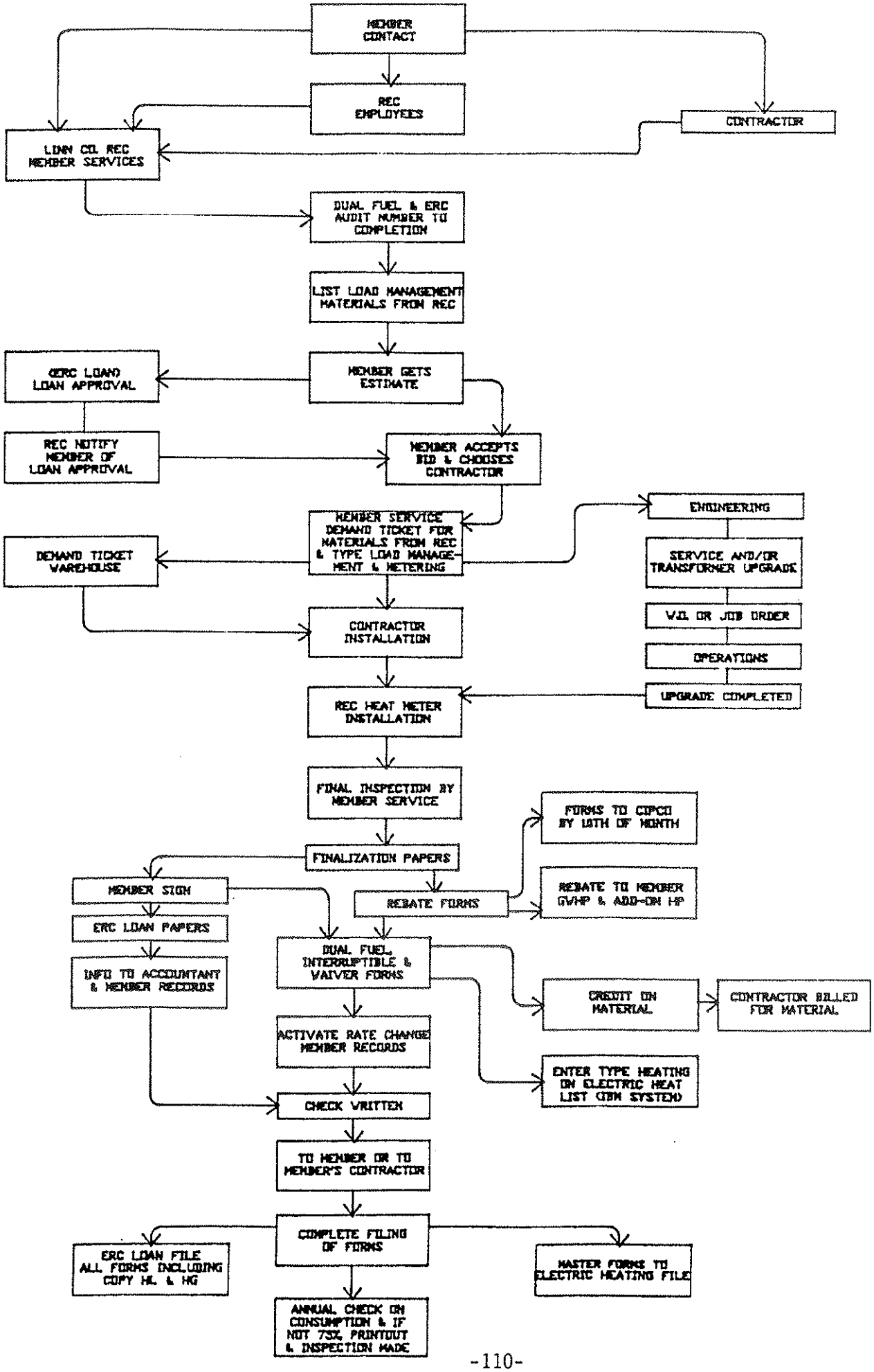
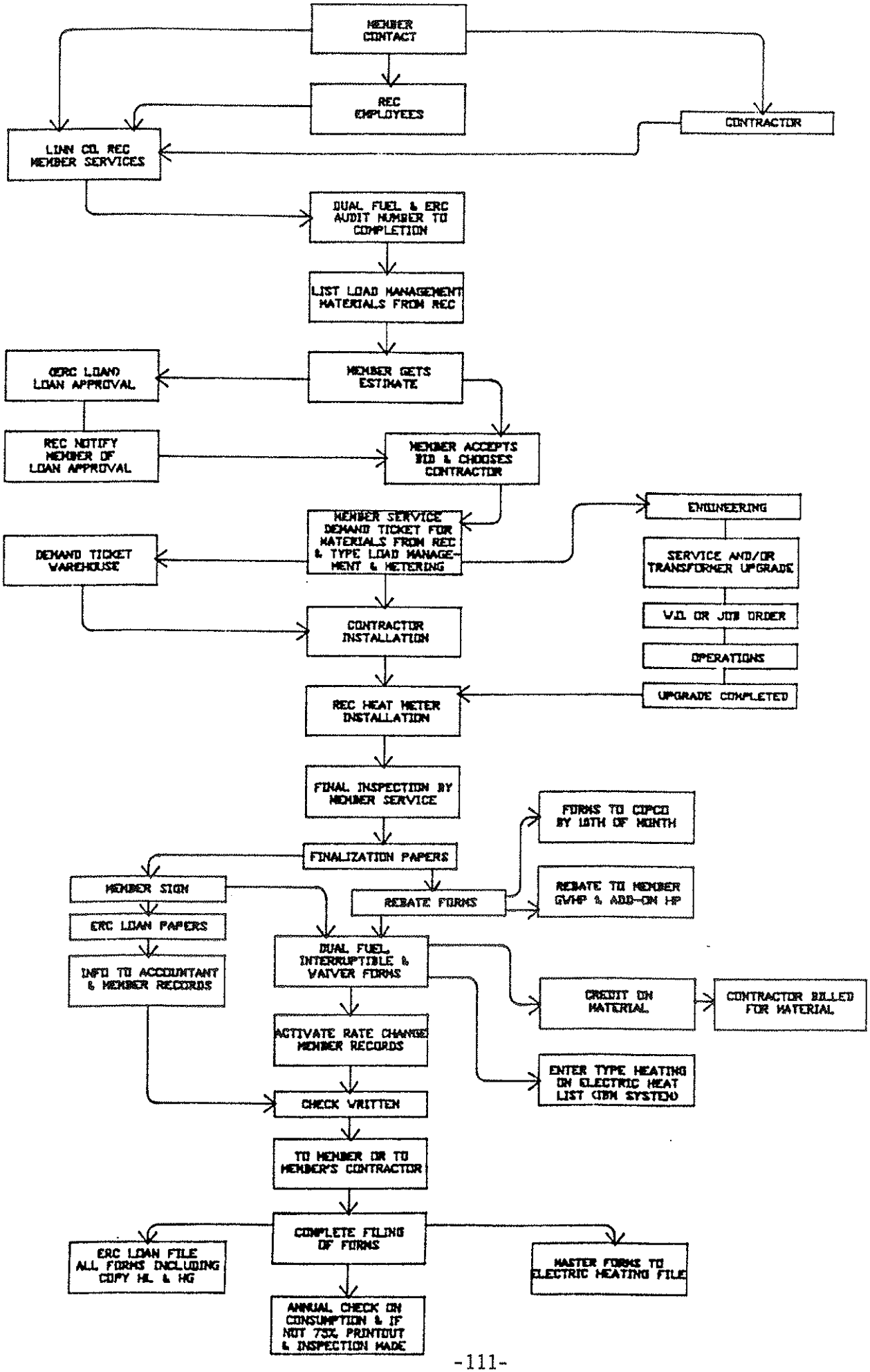
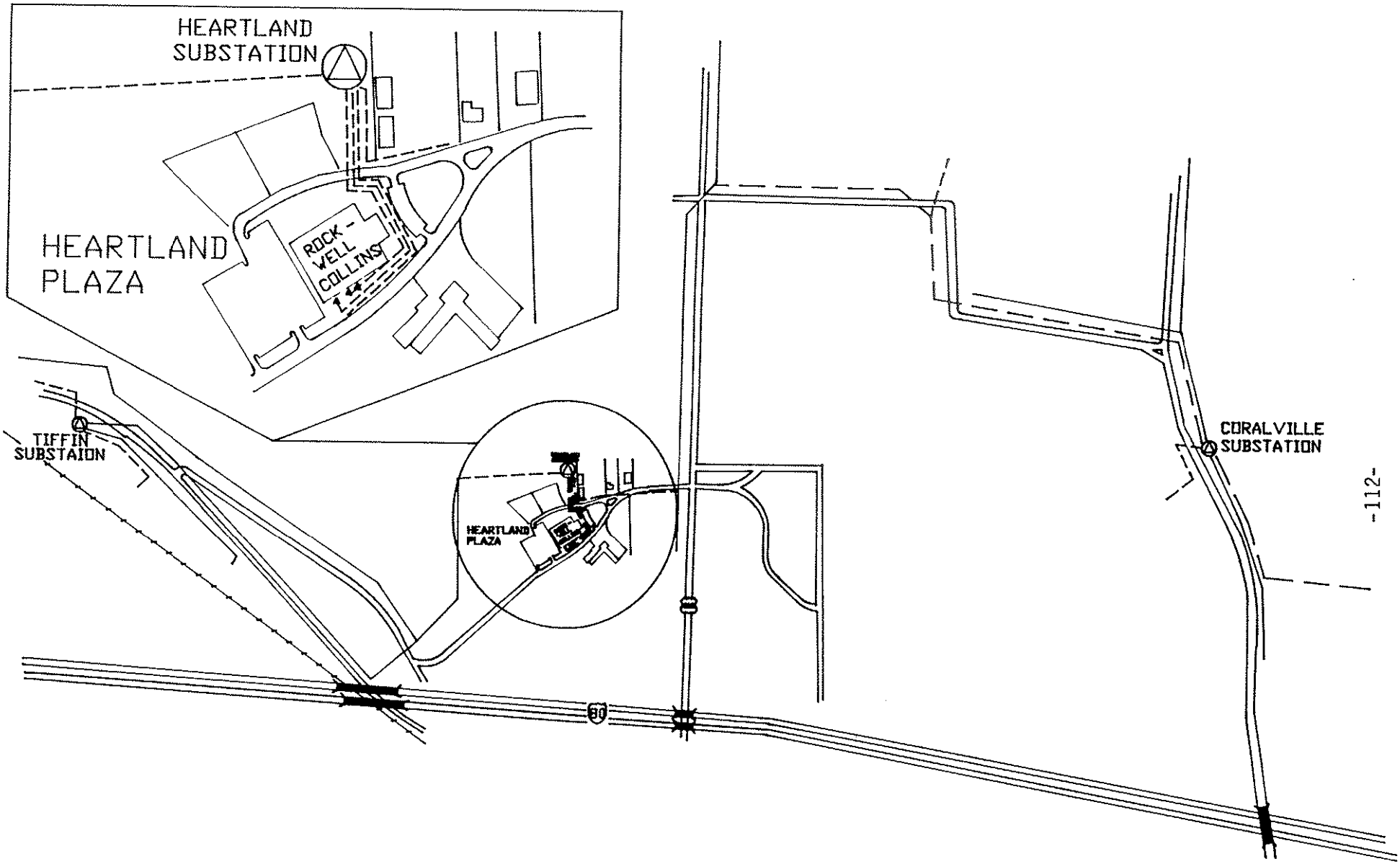


EMI LOAN DUAL FUEL & INTERRUPTIBLE HEATING FLOW CHART

EMPLOYEE DUAL FUEL & INTERRUPTIBLE HEATING FLOW CHART





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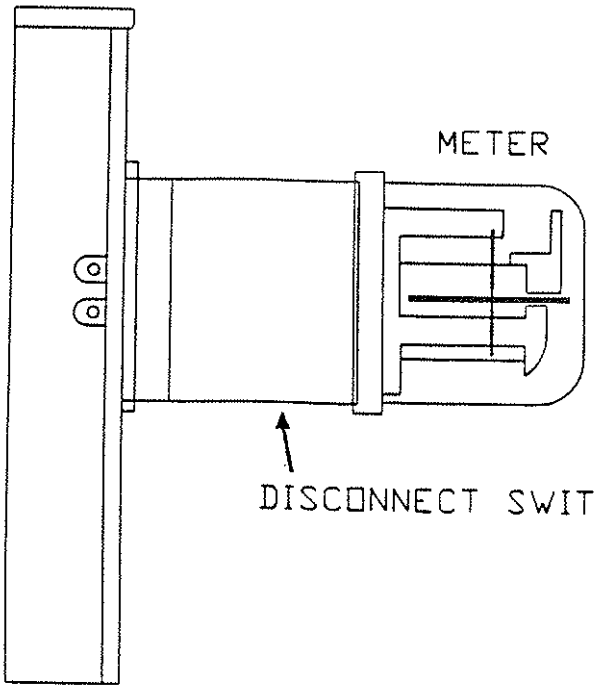
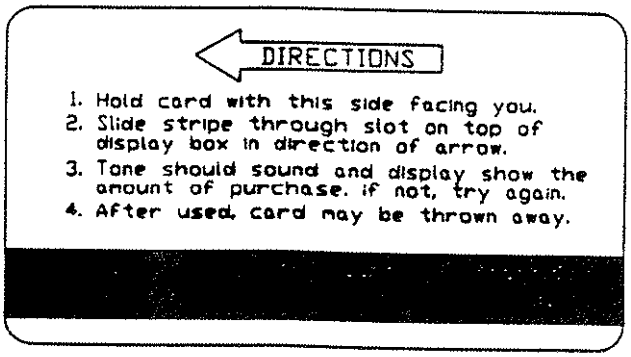
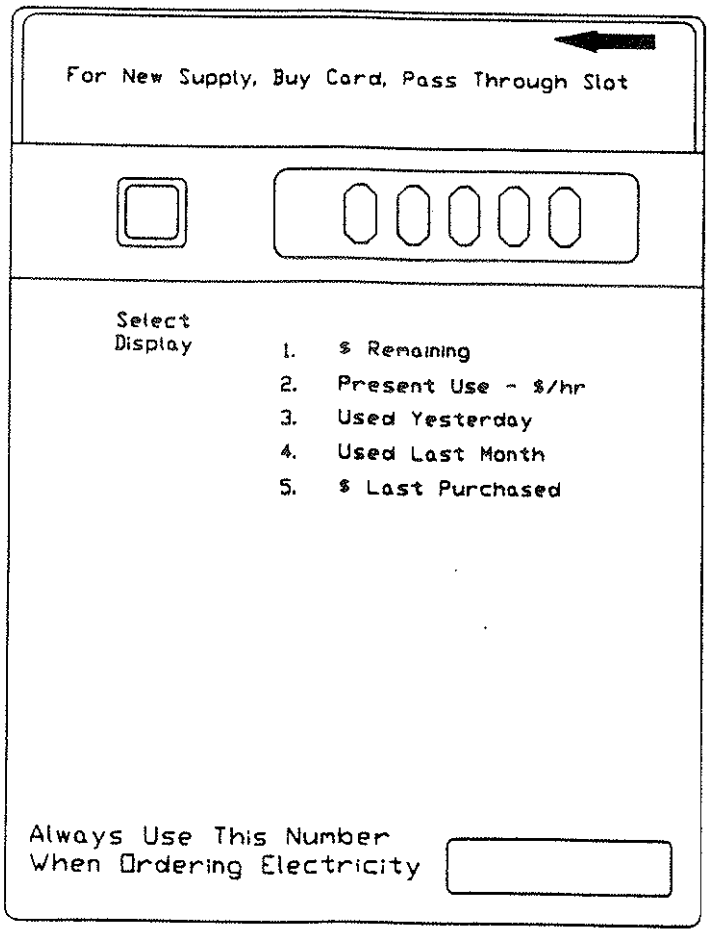
Title: Heartland Area Coralville, Iowa		Drawing No. 2627



METER SOCKET

MAG STRIPE CARD





DISPLAY BOX

Present Equipment

386 computer

33 MHz

320 MB hard disk

150 MB tape drive

19" high resolution monitor

13" color monitor

Scanner

8 pen plotter

AutoCAD software

$ 25,000

Advantages

Updates
Special requests
Flexibility
Access to staking sheets
Forgiving

Disadvantages

Conversion time

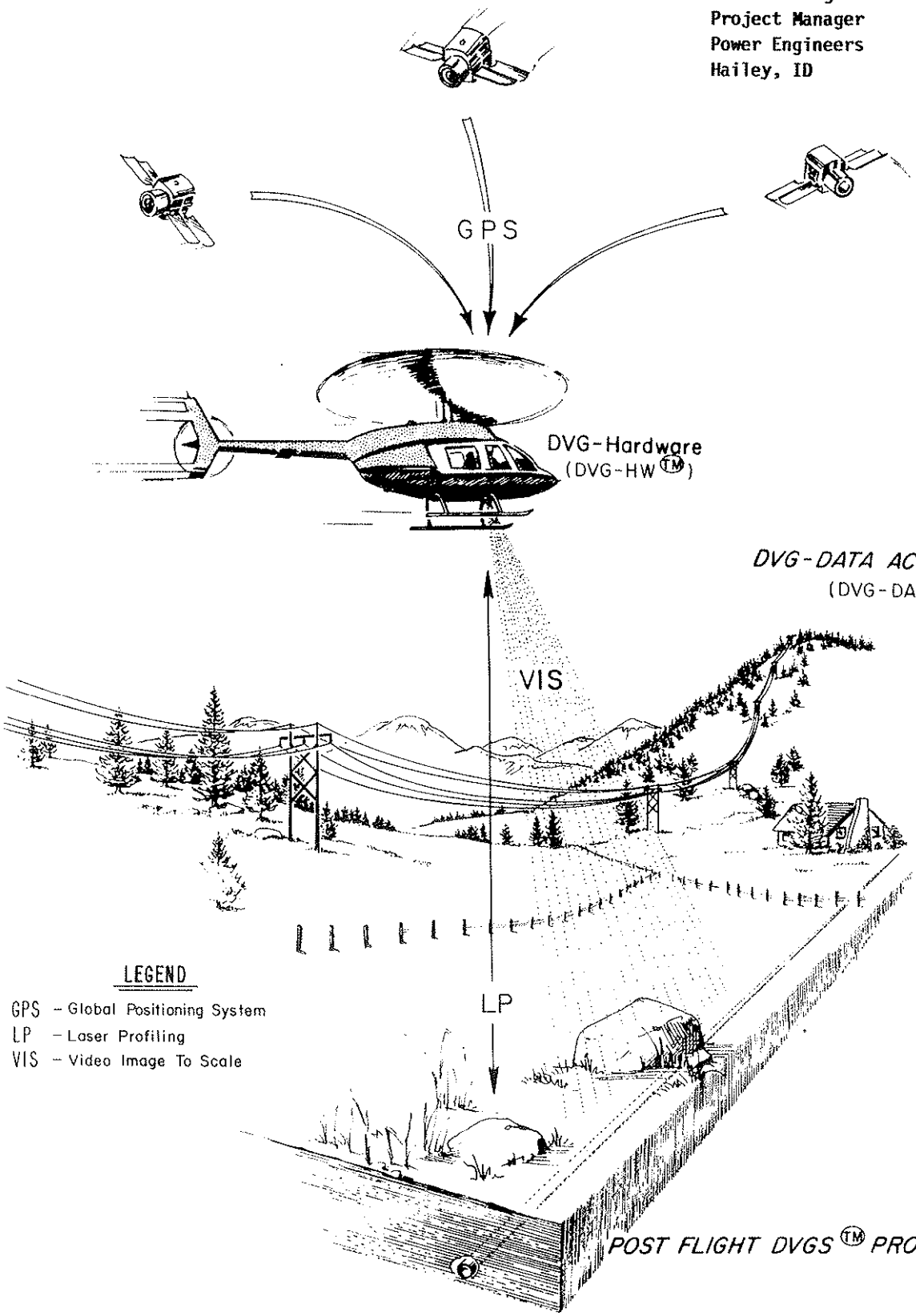
Expensive up front

Moving target

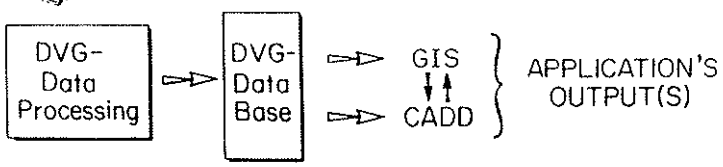
System with change

DIGITAL VIDEO GEOGRAPHIC SURVEYS (DVGS™)

John Henning
Project Manager
Power Engineers
Hailey, ID



POST FLIGHT DVGS™ PROCESSING



THE DRIVING FORCE BEHIND "GIS" OR GEOGRAPHIC INFORMATION SYSTEMS, AS WITH ALL COMPUTER BASED DATA SYSTEMS, IS THE CONSOLIDATION AND ORGANIZATION OF INFORMATION FOR RAPID ACCESS AND BETTER MANAGEMENT. A "GIS" IS COMPOSED OF FIVE BASIC ELEMENTS. THE FIRST IS DATA OR INFORMATION ABOUT YOUR SYSTEM. THE SECOND ELEMENT IS HARDWARE SUCH AS A DIGITIZER THAT ALLOWS EXISTING MAPS OR AERIAL PHOTOGRAPHS TO BE ENTERED GRAPHICALLY, A CENTRAL PROCESSING UNIT THAT STORES AND MANIPULATES THE DATA, A KEYBOARD TO ENTER DIGITAL DATA, A MOUSE FOR MENU SELECTIONS AND ON-SCREEN EDITING, A DISPLAY SCREEN AND A PLOTTER FOR PRODUCING THE FINAL "HARD COPY". THE THIRD IS SOFTWARE, IN THIS CASE PC ARC/INFO DEVELOPED BY ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE OR ESRI. THE FOURTH ELEMENT IS A WORKING SET OF ADMINISTRATIVE PROCEDURES AND PLANS TO USE THE DATA AND THE LAST, BUT MOST IMPORTANT ELEMENT, IS PEOPLE TRAINED TO OPERATE THE SYSTEM AND USE ITS CAPABILITIES TO SERVE THE NEEDS OF THE MEMBERS.

FOR MANY YEARS, CO-OPS KEPT "DETAIL MAPS" AND "STAKING SHEET BOOKS" TO RECORD INFORMATION ABOUT THEIR LINES. TO MAINTAIN ACCURACY, BOTH THE MAPS AND THE STAKING SHEETS HAD TO BE UPDATED. THOSE OF YOU WHO HAVE WORKED IN ENGINEERING OR PLANT RECORDS WILL SURELY REMEMBER THE MANY HOURS YOU SPENT RECORDING INFORMATION TWO OR MORE TIMES.

LAWS GOVERNING PCB'S AND THE NEED TO TEST TRANSFORMER OIL DEMONSTRATED ANOTHER DEFICIENCY IN PAPER RECORDS. PRODUCING A LIST OF TRANSFORMERS WITH THEIR LOCATIONS REQUIRED GOING THROUGH THE STAKING SHEETS PAGE BY PAGE, AND COPYING THE NECESSARY INFORMATION. THIS PROCESS COULD BE GREATLY SIMPLIFIED IF THE STAKING SHEETS WERE IN A COMPUTER DATABASE. COMPUTERIZED STAKING

SHEETS COULD BE SORTED TO LIST ONLY POLE LOCATIONS WITH TRANSFORMERS OR COULD HAVE COLUMNS ADDED TO STORE INFORMATION ABOUT TEST RESULTS OR DISPOSAL RECORDS. WHILE COMPUTERIZED STAKING SHEETS ARE A GREAT STEP FORWARD, THEY STILL REQUIRED DUPLICATING INFORMATION ON MAPS.

IF THE STAKING SHEET DATA BASE WAS ENTERED ON A "GIS", THE MAP AND THE STAKING SHEET WOULD BE ACTIVELY TIED TOGETHER, ALLOWING ONE CHANGE TO BE A "GLOBAL UPDATE". LEDGER TYPE RECORDS LIKE STAKING SHEETS COULD STILL BE PRODUCED AND MAPS HIGHLIGHTING INFORMATION COULD ALSO BE PLOTTED..... FOR INSTANCE A MAP OF WELLS COULD BE CREATED HIGHLIGHTING "LINE 15" WITHIN THE MAP. THIS MAP COULD BE SELECTIVELY EDITED TO SHOW AN ENLARGED DETAIL OF LINE 15 WITH THE TRANSFORMERS THAT NEED TO BE TESTED.

TRANSFORMER TESTS ARE NOT THE SOLE EXAMPLE. POLE INSTALLATION DATES,.... POLE STRENGTH TEST,... LOAD AND SECTIONALIZING STUDIES,.... LINE MILEAGE LEDGERS,.... PROPERTY OWNERSHIP,.... EASEMENTS.... AND CONSUMER INFORMATION THAT WAS TOO CUMBERSOME TO INCLUDE IN THE STAKING SHEETS CAN NOW BE KEPT IN THE SAME SYSTEM.

RECORDS WERE NOT ONLY DUPLICATED WITHIN ENGINEERING, BUT WITHIN OTHER DEPARTMENTS SUCH AS BILLING AND PLANT ACCOUNTING. "GIS" IS ABLE TO UTILIZE DATA RESOURCES EFFECTIVELY BY CONCENTRATING INFORMATION AND MORE IMPORTANTLY, THE EFFORTS OF PEOPLE WORKING ON DIFFERENT TASKS OR EVEN IN DIFFERENT ORGANIZATIONS. THE "GIS" CAN WORK WITH BILLING MAINFRAMES TO ACCESS THE MULTITUDES OF DATA AVAILABLE THERE. KILOWATT-HOUR USAGE FROM ACTUAL MONTHLY METER READINGS CAN BE DOWNLOADED IN LINE SEGMENTS FOR ANALYSIS IN LOAD STUDIES AND FORECASTS. MAILING LISTS OF MEMBERS WHO WILL

BE AFFECTED BY SCHEDULED POWER OUTAGES CAN ALSO BE PRODUCED. WHILE WREC UTILIZES A "PC BASED GIS", THE SYSTEM CAN BE CONNECTED TO THE BILLING MAINFRAME OR CONNECTED TO NETWORKS OF PC'S EQUIPPED WITH HARDWARE KEYS TO PROTECT THE SOFTWARE FROM "PIRACY".

MAPS FROM OTHER UTILITIES PRESENT A SPECIAL CHALLENGE. THIS INFORMATION IS VERY VALUABLE, ESPECIALLY WHEN DETERMINING THE LOCATION OF NEW CONSTRUCTION.

MAPS SHOWING UNDERGROUND FACILITIES ACCURATELY COULD BE USED TO PREVENT "DIG-INS", IF A CO-OP WAS FORTUNATE ENOUGH TO RECEIVE THIS INFORMATION. HOWEVER, IF THESE MAPS WERE AVAILABLE, THE CO-OP FACED THE TASK OF STORING AND MAINTAINING A SEPARATE SET OF MAPS OR MANUALLY SCALING THESE MAPS ONTO EXISTING DETAIL MAPS. ACCURACY OF SUCH MAPS IS LIMITED BY THE ABILITY OF OTHER GROUPS TO PROVIDE CURRENT INFORMATION AND THE LUXURY OF ENOUGH TIME TO TRANSFER THE DATA.

"GIS" PROVIDES A SOLUTION TO THIS DILEMMA. THROUGH A MODULE CALLED "PC DATA CONVERSION", INFORMATION FROM A HOST OF OTHER COMPUTER BASED DRAFTING, MAPPING AND DATABASE SYSTEMS CAN BE UTILIZED TO PROVIDE ACCURATE "ONE PIECE" MAPS. WELLS RURAL WORKED WITH THE CONSULTING ENGINEERS RESPONSIBLE FOR THE CITY OF WELLS WATER AND SEWER SYSTEMS TO OBTAIN CURRENT MAPS AND PLANS FOR FUTURE EXPANSION.

THIS INFORMATION HAS BEEN TRANSFERRED TO OUR SYSTEM AND CAN BE DISPLAYED BY ITSELF OR AS A PART OF OUR EXISTING FACILITIES MAP. TO ENSURE ACCURACY, THESE MAPS CAN BE SCALED OR FITTED TO CONFORM TO KNOWN GEOGRAPHIC MONUMENTS SUCH AS SECTION CORNERS.

INFORMATION FROM OTHER ORGANIZATIONS MAY BE TRANSFERRED IN SEVERAL FORMATS AND BE UTILIZED BY "GIS". "IGES" (INITIAL GRAPHICS EXCHANGE STANDARDS) OR "AUTOCADS DXF" (DRAWING INTERCHANGE FILES) MAY BE IMPORTED INTO THE SYSTEM. INFORMATION IS ALSO AVAILABLE FROM THE CENSUS BUREAU'S "DIME, TIGER, AND ETAK" MAPS, THE INTERIOR DEPARTMENT'S "MOSS" MAPS AND THE GEOLOGIC SURVEY'S "DLG-3 MAPS". COUNTY RECORDERS AND ASSESSORS NATIONWIDE ARE TRANSFERRING THEIR RECORDS TO SIMILAR SYSTEMS. THIS WILL MAKE PROPERTY OWNERSHIP MAPS AVAILABLE TO "GIS" USERS. THIS INFORMATION CAN BE USED TO PLAN ROUTING TO AVOID HOSTILE PROPERTY OWNERS OR AGENCIES THAT CAUSE UNACCEPTABLE DELAYS. MAPS SHOWING THREATENED OR ENDANGERED SPECIES WILL ALSO BE AVAILABLE, AS WELL AS COMMERCIALLY PRODUCED TOPOGRAPHY MAPS. THESE MAPS CAN BE USED AS SUPPLEMENTAL BACKGROUND DATA OR AS A BASE MAP. WITH THE RAPID GROWTH OF THE PAST FEW YEARS THROUGHOUT OUR TERRITORY, WELLS RURAL CHOSE TO USE AERIAL PHOTOGRAPHS WITH LOCATED MONUMENTS AS A BASE. THESE PHOTOGRAPHS WERE DIGITIZED OR ENTERED INTO THE "GIS" TO PROVIDE CURRENT AND ACCURATE LOCATIONS FOR BOTH OUR SYSTEM AND IT SURROUNDINGS.

PERHAPS THE GREATEST ASSET OF "GIS" IS ITS ABILITY TO STORE TREMENDOUS AMOUNTS OF INFORMATION WHILE ONLY DISPLAYING THOSE PARTS NECESSARY FOR THE TASK AT HAND. FEATURES MAY BE DISPLAYED INDEPENDENTLY OR TOGETHER DEPENDING

ON THE APPLICATION. FOR INSTANCE THE STREETS, Pause POWER LINES, Pause WATER ~~LINES~~ AND SEWER LINES FOR WELLS CAN BE STORED AND DISPLAYED CREATING LAYERS OF DATA. THIS METHOD OF MAP DEVELOPMENT PROVIDES ONLY THE INFORMATION NEEDED FOR REFERENCE. IT ENHANCES CLARITY BY OMITTING UNNECESSARY DETAILS. SUCH CLARITY COUPLED WITH THIS LARGE AMOUNT OF DATA WAS IMPOSSIBLE WITH PAPER OR EVEN MYLAR MAPPING BECAUSE OF SPACE CONSTRAINTS OR REPRODUCTION LIMITATIONS.

TIME SAVINGS IN THE DEVELOPMENT OF THE ORIGINAL MAPS ARE ONLY SLIGHTLY LESS THAN CONVENTIONAL DRAFTING METHODS. GREAT TIME SAVINGS ARE REALIZED IN EDITING, UPDATING, AND REPRODUCING MAPS. NOT ONLY CAN FIELD MAPS BE PRODUCED IN COLOR BUT SMALL MAPS FOR WORK ORDERS CAN BE COPIED FROM THE BASEMAP, EDITED TO SHOW CHANGES, AND PLOTTED FOR WORK CREWS; BUT THE FINISHED MAP CAN BE COPIED BACK INTO THE "BASEMAP" TO UPDATE THE SYSTEM.

"GIS" IS ORGANIZED IN MODULES TO PROVIDE ONLY THE CAPABILITIES THAT A GROUP REQUIRES. EACH MODULE COMES WITH ITS OWN COMMAND AND USAGE MANUAL AND IS AVAILABLE WITH SELF-SPACED VIDEO AND WORKBOOK "TUTORIALS" TO TRAIN NEW USERS. THESE ARE WELL WRITTEN AND INFORMATIVE PROGRAMS THAT USE "READING", "WATCHING" AND "DOING" TO HELP TEACH THE COMMANDS.

THE PROGRAMMING IS SIMILAR TO OTHER SOFTWARE AND COMPUTER USERS WILL FIND ITS WORK ENVIRONMENT FRIENDLY. COMMANDS ARE STRUCTURED LIKE MANY OTHER PROGRAMS AND THE USER BENEFITS FROM KNOWING HOW TO OPERATE OTHER UNRELATED PROGRAMS.

THERE ARE THREE WAYS TO OPERATE THE SYSTEM. THE FIRST IS THROUGH CUSTOM DESIGNED MENU INTERFACES. THESE MENUS PROVIDE RAPID USE OF SPECIFIC REPEATED FUNCTIONS BUT LIMIT THE USER TO PREDETERMINED TASKS. NEW USERS OFTEN FIND SUCH MENUS HELPFUL AND THEY OFFER SOME PROTECTION FROM ERRORS. EXPERIENCED USERS MAY FIND THESE MENUS TOO LIMITING BUT PREFER TO WORK IN A MENU DRIVEN ENVIRONMENT. FOR THESE PEOPLE, THE "ARC SHELL" PROVIDES A MENU WITH THE UNLIMITED FLEXIBILITY OF THE SYSTEM WITH THE CONVENIENCE OF MOUSE OPERATION OF A MENU. THE ONLY DRAWBACK OF THIS MENU IS THAT IT MUST UTILIZE A PORTION OF THE GRAPHICS SCREEN FOR DISPLAY. COMMANDS MAY ALSO BE KEYED IN FROM THE KEYBOARD. THIS PROVIDES THE GREATEST FLEXIBILITY AND GRAPHIC DISPLAY BUT REQUIRES THE OPERATOR TO REMEMBER THE COMMANDS AND THEIR SYNTAX.

EVEN THE MOST EXPERIENCED USERS WILL OCCASIONALLY ENCOUNTER PROBLEMS OR DISCOVER FLAWS. TO ASSIST USERS IN THESE SITUATIONS AND TO CORRECT BUGS AS SOON AS POSSIBLE, "ESRI" HAS ESTABLISHED AN OPTIONAL USER SUPPORT NETWORK. THIS NETWORK IS STAFFED WITH PEOPLE FAMILIAR WITH SPECIFIC HARDWARE SYSTEMS. BEST OF ALL, THEY HAVE ACCESS TO THE DESIGNERS AND PROGRAMMERS RESPONSIBLE FOR CORRECTING AND IMPROVING THE SYSTEM. IN THE SIX SHORT MONTHS THAT WREC HAS BEEN USING THE GIS, IT HAS RECEIVED COMPLIMENTARY UPDATES TO CORRECT SCREEN CLEARING, SELECTING AND FILE CREATION ERRORS.

WHILE "GIS" ENHANCES MAPPING, SPEEDS UPDATING AND THEREFORE ASSURES ACCURACY, ITS POWER IS NOT LIMITED TO FACILITY MANAGEMENT. ITS GRAPHICS CAPABILITIES ALLOW IT TO BE USED TO CREATE ORGANIZATIONAL CHARTS, AND EVEN THE TOURNAMENT BRACKET FOR THE ANNUAL EMPLOYEE/DIRECTOR PICNIC HORSESHOE

FLINT EMC'S DRUG AND REHABILITATION PROGRAM

"THE MORNING AFTER"

REMDC MEETING
May 23, 1990

IT'S THE MORNING AFTER...you've consumed a six-pack of beer while watching a football game and it's your turn to have a drug test.

IT'S THE MORNING AFTER...you've attended a wild party and was surrounded by marijuana smoke until after midnight and you're to be tested.

IT'S THE MORNING AFTER...one of your employees has gone to a rehabilitation center...what do you tell the other employees?

IT'S THE MORNING AFTER...one of your employees was arrested for possession of crack...what do you do?

IT'S THE MORNING AFTER...an employee who has already gone through rehabilitation was seen drunk the night before.

IT'S THE MORNING AFTER...an employee was released from rehabilitation and it's his first day back on the job...How will he be accepted?

IT'S THE MORNING AFTER...one of your supervisors has called you and said he suspected someone on his crew was on drugs.

IT'S THE MORNING AFTER...the test results have come back on an employee and it's positive...they assure you it's an error.

IT'S THE MORNING AFTER...an employee admits he has a problem and wants help...what do you tell him...where does he go?

IT'S THE MORNING AFTER...your Board of Directors has authorized you to implement a drug testing program...When do you start and how?

WHAT does NIDA mean? WHAT is an MRO? WHAT is GC/MS?

WHAT is a chain of custody? HOW do you select a rehabilitation center? WHAT happens tomorrow IF ...WHERE do I find the answer TO
WHAT ABOUT ... WHAT IF THEY DON'T? ... WHEN DO I ... HOW SHOULD I ... WHO WILL ??????

IT TRULY IS A DECADE OF DECISIONS!

This is no longer someone else's problem, it's yours and mine...and one that we can't keep brushing aside mainly because of two laws that have been passed:

The Federal Drug Free Workplace Act of 1988 provides a golden opportunity for managers who have hesitated to establish a drug free workplace program because of public and employee misperception. On January 21, 1989, Congress passed this Act which mandates that all companies with two or more employees doing business in excess of $25,000 with the Federal Government have verifiable programs which address substance abuse in the workplace.

This requires you to: publish a statement that the unlawful manufacture, distribution, possession or use of a controlled substance is prohibited in the workplace, and establish a drug awareness educational program. Drug testing is not required.

A separate program of the Department of Transportation governs motor carriers with 50 or more drivers to have had a drug testing program in effect by December 21, 1989. If less than 50 drivers, you have until December, 1990. A one-hour educational program is required under this law.

Our Board had been contemplating drug testing for some time; therefore, when DOT's regulations were passed, we decided it was time to take the plunge and implement a program for all employees since we had approximately 60 who fell under the DOT regulations.

Our Board Committee on Employee Policies met in July, 1989, with our Attorney and myself. We laid everything out on the table for discussion to see how they felt about education, random testing, paying employee's expenses insurance would not cover, who they felt should be the EAP Coordinator, etc. An outline of the policy was then drafted and we obtained prices on drug testing, rehabilitation and other items of concern. This policy outline was approved at the August Board Meeting...and after that is when we began contacting doctors, labs, and rehabilitation centers for more information. The more we learned, the more questions we had. That's when we made the decision of the decade to hire a consultant who had all of this information at their finger tips. We were advised step by step of what we had to accomplish...and this is not as easy as it sounds in a rural community.

We were informed that the DOT requires that labs testing workers be NIDA certified...AND, what is NIDA? The National Institute on Drug Abuse which is a certifying agency for the Department of Health and Human Services. It has been in existence for ten years.

Since there were no local labs, we chose Smith-Kline laboratory out of Atlanta to process our tests. They exceed the NIDA standards and are the largest lab network in North America, plus they are very cooperative in providing educational programs for the employees and continually check to make sure the collection sites are following regulations. One plus for our consultant was they were able to negotiate prices with them and lock us in on a price we would never have gotten.

Then we had to look for a NIDA approved collection site used by this lab...and we had none in our local area. We talked with our company doctor who was not willing to conform to the government regulations. For those of you who are in the process of selecting a collection site, there is specific protocol that must be followed. The faucets must be taped or water cut-off valves closed, there must be bluing in the toilet, donor must be informed not to flush toilet or attempt

to wash hands after voiding. All soap must be removed, and urine must be checked for temperature within four minutes. They must properly fill out the chain of custody which is submitted with the specimen and initialed. Specimen must be properly labelled and signed by everyone handling the specimen. (Show sample of form and kit). We did find a new doctor's office 14 miles away from our headquarters office which had been NIDA approved and one in our immediate Warner Robins area. The problem with the newer facility was that it was a totally minority office. We selected it and announced that if anyone had any problems going to this facility they could go on to Warner Robins. There were a few of the ladies in the office who preferred to go to Warner Robins.

Under the DOT regulations, you are required to have an MRO (Medical Review Officer). This doctor receives the DOT test results, reviews them, and discusses with the donor any possible problems if test results are positive. The MRO protects the employees from false positive results due to errors and assures that no legitimate medical use of drugs gets reported to the employer as a false positive. The results for DOT testing will not be given over the phone from the lab nor will there be a name on the results to the MRO. You can elect to use employee's social security number or employee number. Only the EAP Coordinator will know the name associated with the form number and ID number. On the NIDA Look-A-Like tests which we chose for clerical employees, there is a name and unless you specify otherwise, results will be mailed directly back to you. We chose to have all of our employees treated equally with all results being mailed to the MRO. We chose our company doctor in Warner Robins and Reynolds for this. We had to agree with one of them that if they were subpoenaed as a result of a drug test, that he would be paid at his normal daily rate.

Six rehabilitation centers were visited and we chose three in our area and one outside of the area. We secured in writing charges for the various services they offered.

The policy was finalized and I think this was the biggest problem I encountered...compromising opinions of the General Manager, the consultant, myself, and our attorney. Our attorney wanted to keep it in outline form, so we compromised and added procedural responsibilities to it. Our policy covers across the board drug testing for all employees at a given time, random testing, pre-employment testing, and testing of employees involved in a vehicle accident or significant loss of property, at the discretion of management. All employees will undergo a physical exam every two years to include drug testing.

We will allow rehabilitation one time to employees who have completed one year of employment and guarantee employment upon being released by the doctor and upon their following the after-care program. We test for the five drugs that are required under the DOT regulations and not alcohol. Blood alcohol tests will be administered upon reasonable suspicion or at the time of an accident.

We had announced verbally and in staff meeting minutes throughout the year that Drivers were going to have to be tested and that our Board was looking at a drug testing program. The first direct written communications was in November and the policy was distributed in early December to all employees. An educational meeting for all supervisors was held where they were informed of all the laws, the various drugs and how to detect them, and Flint's proposed policies and procedures. The procedures and revised policy were mailed to the employees the latter part of

December. The first two weeks in January, we had two educational meetings at night, along with a barbecue meal, for employees and their families. We also held one make-up meeting during working hours for those employees who could not attend either of the nightly sessions. At these meetings, we had our company doctor, a representative from Smith-Kline lab, and a representative of one of the rehabilitation centers to give a brief presentation and be available for questions. In addition, we explained Flint's policy and insurance coverage. We required our employees to be present at one meeting, paying them overtime for the actual time of the meeting. We provided a nursery for the children five and under.

The biggest concern our supervisors had at their meeting was testing for alcohol and what would happen if they drank a beer and then received a call to come to work. When we assured them that the urine tests were not for alcohol and gave them reasons for having to have a blood test, they were satisfied. There was still some concern about drinking a beer while on call and something happening for which they might be tested.

At the employee meetings the major concern was the various type medications they were taking, foods they might eat, the possibility of getting the urine samples mixed up with someone elses, and why they had to remove their clothing. These questions were answered but there was still some apprehension about them getting the urine mixed up until after the test results were back. If the tests came back positive and they knew they were not on drugs how could they convince us? There was also some concern as to why we were not randomly testing for alcohol. Overall, our employees wanted the testing done.

Testing actually began on January 15, 1990.

Problems we faced after we started testing: On the first day of testing, an employee came back and said that the doctor had frisked him and he understood no one was to touch him. I call the doctor's office, talked with him, and he said it was a requirement that if a person was overweight to check armpits and crevices to make sure no sample was hidden. This was verified by Smith-Kline; however, they said they could omit this process if it was creating a problem. This newly approved NIDA facility called on the third day and advised they would no longer be a collection site, they could not handle the pressures of following the NIDA chain of custody requirements. Out of the 13 samples they collected, 4 had to go back for retesting due to improper signatures, picture ID, etc. This showed the employees, however, that the lab in Atlanta was serious and if everything was not properly marked it would not be accepted...so this relieved some of the fear about getting samples mixed up. We then had to send all of our employees to Warner Robins which was 30 miles away for some.

We had to send one back for retesting at the lab in Warner Robins for failure to check photo ID. We had one employee who could not give and had to go back the next day. We had one employee to report that there was no bluing in the water. We called the collection site and they advised that the chemical was there; since it was so late in the day, it had lost a lot of color but the chemical test was OK. This in turn was checked out by the Smith-Kline lab.

Employees from our headquarters office lost approximately three hours from work due to travel time involved, but we still feel this is the best choice for us..we want to do all we can legally to avoid any problems, that is the reason for not letting someone come on site and collect samples.

Something unique about our program was that our Board of Directors agreed to be tested just like the employees. They said it was not fair to impose anything on the employees they wouldn't do themselves. When their name was faxed down from the consultant firm in Atlanta, they were called as early as 5:30 A.M. the next morning--whatever time frame they gave me before they left for their daily work routine. We had one director we had to reschedule three times and probably no more than eight employees had to be rescheduled due to being out or having a schedule they could not rearrange that morning. We had one employee who was using a driving permit and did not have a license with his picture on it. Luckily, he had a Membership Card with a picture; otherwise, we would have had to have gone back with him for ID. We had no major problems--just things that were time consuming. We tested 15 per day until we finished and no one knew which morning they were going. The names were faxed down each day from our Consultant. I prepared the paperwork the night before, made necessary travel arrangements and came in early every morning to deliver paperwork to the respective supervisor.

We tested 180 employees and 11 members of the Board with NO --Not One -- resulting in an illegal drug problem. We had one positive result showing use of codeine but it was resolved by the MRO who had prescribed a codeine cough medicine for his child and due to his allergy problems, he took some two nights prior to the testing. He did not realize it had codeine in it. The employee eagerly volunteered to have another test; however, we chose not to send him back at that time.

Our Board was so pleased with the results that they asked us to write a news release for all the local papers. We did, but not one paper chose to print it...I guess because we were drug-free. Our Public Relations Manager finally convinced one paper to run an article, based on an interview with him. We sent a letter of thanks and praise to all employees, included the news release, and asked for their continued support.

We have been random testing for four months and thus far have had no problems. No one has refused to go or refused to sign a release form.

While in the process of putting our program together, we had one employee arrested for the possession of crack away from the workplace and one who wanted to go ahead and be admitted for rehabilitation so he would be out by the time the program was implemented. This was the fourth employee who has been through rehabilitation at Flint over the past four years--three for 28-30 day in-house rehabilitation and one through nightly counseling sessions.

To give you a better idea of how our employees felt, I asked them for their true feelings prior to the testing when they first heard about it and after they were tested.

COMMENTS PRIOR TO THE TESTING:

Very good idea - most large businesses at least do pre-employment.

Favor it 100%.

No problem, good idea.

Anxious--worried about how it was going to be done.

Was worried if my medication was going to show up.

Been wanting this for some time.

I didn't have a fear of it--but felt some had the feeling that it was an invasion of privacy because they did not use them.

COMMENTS AFTER THE TESTING:

There was nothing to it.

Still agree it was the thing to do.

Relieved that nothing showed up from medications.

Needed a longer gown.

Very pleased with the results--proud to be an employee of an organization like this.

I didn't think anyone at Flint was on drugs--this proved it.

Flint Electric Membership Corp.
Opal Wilder
Manager of Corporate Services
Reynolds, GA

AN OVERVIEW OF FEDERAL DRUG TESTING REGULATIONS

All of the Federal Laws pertaining to Substance Abuse Testing specify that individual drug tests be run on urine samples.

The laboratory used must be certified by the National Institute on Drug Abuse (NIDA).

Federal Regulations call for ALL test results to be interpreted by a Medical Review officer (MRO). He or she must be a Medical Doctor or Osteopath. DOT has stated that the MRO is supposed to act as a check on the lab and therefore should be independent of the lab to avoid a conflict of interest.

Department of Transportation regulations require the use of an Employee Assistance Program (EAP) for the purpose of educating employees and their supervisors on the hazards of substance abuse.

The testing regulations should be viewed as minimum requirements. It is possible for a company to go beyond the minimum in areas such as testing for other drugs (barbiturates, for example), testing employees other than drivers, or providing for counseling services in its Employee Assistance Program.

The regulations do not tell a company exactly what action to take when an employee or prospective employee tests positive. The employer's policy statement should be explicit in this area. The driver is not fit to drive, but it is not required that he or she be fired. A company has every right, though, to take that action, if the policy is clearly stated.

Companies with 50 or more "drivers subject to testing" are required to implement a testing program by December 21, 1989. Companies with less than 50 "drivers subject to testing" are required to implement a program by December 21, 1990.

A HISTORICAL PERSPECTIVE

On September 15, 1986, President Ronald Regan issued Executive Order 12564. In conjunction with Section 503 of Public Law 100-71, this Order pertained to creating a Drug Free Workplace in areas regulated by the Federal Government, or any of its Agencies or Departments.

Guidelines for drug testing were first developed for federal employees who fell under this act by the Department of Health and Human Services (DHHS). Subsequently, all agencies and departments developed their own rules and guidelines using the DHHS model for areas of American business under direct federal regulation.

The Department of Transportation (DOT) modified the DHHS regulations to better fit the needs and problems of the transportation industry. 49 CFR Part 40 details the testing and collection procedures to be followed. This rule is in an interim final rule stage.

49 CFR Parts 391 and 394 are finalized and set out the requirement for companies to test.

WHEN AND UNDER WHAT CIRCUMSTANCES CAN AN EMPLOYEE BE TESTED?

The new regulations require testing under several types of circumstances. The laws call for an initial testing of all employees at the time of their first medical certification examination (PREEMPLOYMENT). Thereafter, employees are tested RANDOMLY under very specific rules.

Employees are subject to PERIODIC testing upon the renewal of the biennial physical if the employer is not yet testing RANDOMLY at a 50% annual rate. Employees may also be subject to testing for substance abuse after an accident (POST-ACCIDENT) or when their behavior is suspicious (REASONABLE CAUSE).

Note that each testing requirement is independent of the other.

Both RANDOM and POST-ACCIDENT testing are currently enjoined from being enforced by DOT. That does not stop a company from going ahead with both types of testing on its own. Both types of tests have been upheld by federal courts in other industries. It is generally felt that even these two types of testing will be required in the near future.

The regulations currently apply only to drivers who are subject to the driver qualification requirements of the Federal Motor Carrier Safety Regulations (49 CFR Part 391). A driver is subject if, at any point during the year, he or she operates a vehicle:

1. With gross vehicle weight rating or gross combination vehicle weight rating of 10,001 pounds or more

   or

   one of any weight used to transport hazardous materials in a quantity that requires placarding.

   and

2. When the vehicle is used on public highways to transport property in interstate commerce.

COLLECTING THE SPECIMENS

Federal Guidelines mandate that certain specific procedures be implemented in the collection of urine specimens for drug testing. These procedures are meant to safeguard the identity and integrity of the specimen while attempting to assure the employee as much privacy and confidentiality as possible.

Unfortunately, though, there is no enforcement or education process to make sure the procedures are followed. For quality assurance all aspects of the collection process should include:

- Selection of collection sites with staff trained in proper collection procedures per the company's requirements.

or

- Train your collection personnel and issue a certificate of Competency in specimen collection for drug testing.

The weakest link in the entire mandated testing process is collection. More legal problems for companies can potentially be created here than any other part of the testing process.

MEDICAL REVIEW OFFICER

The Medical Review Officer (MRO) is a key figure under the new regulations. The MRO will be the connection between the company or agency, the laboratory, and the employee. All decisions made by the MRO require knowledge of Substance Abuse, the ability to recognize an abuser and the capacity to store and collate meaningful data about the program.

The MRO makes the decision as to who is reported to the appropriate management person after a confirmed positive report has been received. The MRO must take into account:

- Could the employee be taking a substance that might account for a positive screen and NOT be abusing a controlled substance?

- Could the person be taking medication that might account for a positive test:

The act stipulates that only after an investigation by the MRO, which may include an employee interview or an actual examination, can the test be reported as positive.

If there is any question as to the validity of the test, its collection, or the procedures used to test the specimen, the MRO may:

- Request another test.

- Declare the test negative.

As you can see, the role played by the Medical Review Officer is crucial. He will assist the company, the employee, and the independent laboratory in assuring the validity and truthfulness of the testing procedures. His judgments must be made with a clear understanding of the legal implications inherent in these conclusions as they relate to both employer and employee.

THE EMPLOYEE ASSISTANCE PROGRAM

The DOT mandated EAP only calls for education not treatment or rehabilitation.

DOT regulations provide the following minimum requirements for an EAP:

1. Educational program for drivers and supervisors on:
   - The effects and consequences of controlled substance use.
   - The behavior patterns that may indicate controlled substance use.
   - Documentation of the training given.
2. These programs must be at least 60 minutes long for drivers and supervisors.

FLINT ELECTRIC MEMBERSHIP CORPORATION
Reynolds-Warner Robins-Perry

POLICY NO. 164

SUBJECT: DRUG AND SUBSTANCE ABUSE POLICY.

POLICY:

The Flint EMC Board of Directors is committed to insuring a Drug and Alcohol-Free Workplace for its employees. To accomplish the objective of this policy, it will provide for education, drug testing, rehabilitation and discipline. Employees will not be involved with the use, possession, sale or transfer of drugs, including alcohol, in any manner, that may impair their ability to perform assigned duties or otherwise adversely affect the company's business.

PROCEDURE:

The drug testing and rehabilitation program will:

1) Be conducted in a manner to protect the privacy of the employees. All information shall be treated as confidential medical information and will be accessible only to those with a valid need to know.
2) Comply with Executive Order 12564, establishing the Drug-Free Workplace Act of 1988.
3) Comply with DOT Commercial License Regulations concerning drug testing as applicable.
4) Establish and continue an education program for Flint EMC employees and family members.
5) Implement non-discriminatory drug testing:
   a) Pre-employment testing of job applicants.
   b) Employees as required by DOT regulations.
   c) All employees on a given date.
   d) Any employee whose actions raise reasonable suspicion.
   e) Employees during rehabilitation.
   f) Periodic random test all personnel.
   g) Employees involved in a vehicle accident, lost-time accident or significant loss of property, at the discretion of management.
   h) All employees will undergo biannual physicals which will include drug testing.

   All employees who test positive will be retested upon request of employee. Any false or irregular tests will be removed from the files.
6) Provide the following rehabilitation program in which employees would be eligible for after one full year of employment and for one time only.

a) Select and provide a rehabilitation program approved by our medical insurance carrier. Any charges not covered by the insurance carrier will be the responsibility of the employees.
b) Flint will guarantee the employee's employment (not a specific position) provided they are released back to work by the doctor.
c) During rehabilitation, sick and annual leave will be coordinated with short-term disability.
d) Employee must follow rehabilitation programs as outlined by hospital and counselor.

7) Provide for the following discipline:

a) Volunteer admission of a problem the first time: No discipline, rehabilitation required.
b) Detection by testing while on the job, first time (less than under the influence): Discipline as appropriate by management, including termination; rehabilitation may be required.
c) Under the influence while on the job is not acceptable. Employee may be terminated.
d) Failure or refusal to take a test when required to do so will result in termination.
e) Tampering with a specimen will result in termination.

Drugs are defined as a prescription or non-prescription substance, including alcohol, which might in any way affect the ability of the employee to perform his/her job safely and efficiently.

Under the influence is that amount of alcohol or other substance as defined by the Criminal Code of Georgia.

On Call Status: Anyone who feels that there is any reason they are not able to function or perform their job appropriately shall have the responsibility of notifying their supervisor upon being called.

PROCEDURAL RESPONSIBILITIES:

RESPONSIBILITY	ACTION
Employee	1) For random, reasonable suspicion, periodic, accident/loss of property and near-accident drug testing, the employee will be requested to sign a voluntary consent form issued by the immediate supervisor or the Employee Assistance Coordinator (EAC).
	2) The employee will report to a Flint designated collection site prearranged with a selected medical laboratory.
	3) If the drug test is negative, the employee will be notified by the Employee Assistance Coordinator and given a copy of the test results.

RESPONSIBILITY	ACTION
Employee	4) If the drug test is positive, including less than under the influence, the employee and the Employee Assistance Coordinator will meet with the co-op-designated Medical Review Officer and be given a copy of the test results.
	5) The employee who is tested for drugs and is less than under the influence of any substance as defined by the Criminal Code of Georgia may be disciplined up to and including termination. Flint may require the employee to participate in the co-op-designated rehabilitation program.
	6) The employee who is tested for alcohol through a blood test and is less than under the influence of alcohol in accordance with the blood alcohol level established by the State law for intoxication may be disciplined up to and including termination. Flint may require the employee to participate in the co-op-designated rehabilitation program.
	7) If the employee requests a retest on a positive test within twenty-four (24) hours of the receipt of the results, the medical laboratory will retest the original urine for drugs and/or blood specimens.
	8) For first occurrence, if the employee confidentially self-refers himself/herself to the Rehabilitation Program through the Employee/Assistance Coordinator and/or the immediate supervisor, the employee will not be disciplined. The employee must agree to take immediate action as deemed appropriate for the circumstance.
	9) The employee refusing to participate in Flint's Drug Testing Program will be immediately terminated.
	10) It is the employee's responsibility to notify their immediate supervisor if prescription and/or non-prescription substances are being taken which may impair performance or the testing results.
Employee	**Voluntary Admission** 1) Eligible employees will self-refer themselves for rehabilitation by contacting the Employee Assistance Coordinator. A choice of designated rehabilitatioin centers will be available. Participation, in itself for rehabilitation, will in no way jeopardize employment. In fact, successful treatment will be viewed positively. However, participation will not: - Prevent normal disciplinary action for a violation that may have occurred already. - Relieve an employee of the responsibility to perform assigned duties safely and efficiently. 2) The employee is required to complete the mandatory requirements of the rehabilitation program, including group therapy. When the employee is released back to work by a physician after successfully completing drug rehabilitation, an assigned position will be available, although it may not be the employee's specific previous position. The employee is required to submit a medical release to the Employee Assistance Coordinator prior to returning to work.

RESPONSIBILITY	ACTION
Employee Assistance Coordinator (EAC)	1) For voluntary and random testing, the Employee Assistance Coordinator will notify the employee the day of the drug testing, will notify the medical laboratory sites one day in advance of the testing, and the supervisor of the absence of the employee for purposes of drug testing.
	2) The EAC will notify each employee of negative test results, give them a copy of their drug tests, and file a copy in a confidential Employee Assistance File. This file is not part of the employee's medical or personnel file.
	3) The EAC will notify the employee to report to the Medical Review Officer, along with the EAC, when the test is positive. If there is to be a retest, the employee should request this within twenty-four (24) hours of the receipt of the results to the EAC or the original test results will be considered as the final test.
	4) The EAC should be notified if there is testing requested by the immediate supervisor for all listed reasons other than random.
	5) The EAC will immediately notify the selected medical laboratory of the employee's drug testing. If the EAC is unavailable, the supervisor, with the approval of the General Manager, will request the drug testing through the laboratory.
	6) The EAC will be responsible for record-keeping and the confidentiality of same.
	7) The EAC will be responsible for coordinating all pre-employment drug testing.
Supervisor	1) The supervisor will immediately contact the EAC for periodic, accident, and near-accident employee drug testing. If the EAC is unavailable, the supervisor, with the approval of the General Manager, will request the drug testing at a selected medical laboratory.
	2) The supervisor will immediately contact the General Manager for approval prior to search or seizure of an employee suspected of selling, distributing, or manufacturing illegal drugs or of having alcohol on company premises or property. If a search is necessary, it would be performed by the proper law enforcement.
	3) If reasonable suspicion of an employee exists, the supervisor will notify his/her immediate supervisor or a member of management prior to taking any action against an employee whatsoever. Reasonable suspicion based on objective criteria means suspicion based on specific personal observations, that the employer can describe concerning the appearance, behavior, speech or breath odor of the employee. Suspicion is not reasonable, and thus not a basis for testing if it is based solely on third party observations and reports.

RESPONSIBILITY	ACTION
Outside Consultant	1) Each month an outside management consulting firm will select the employees for random testing and communicate same to the EAC in Reynolds. The employee data base will be maintained at their firm for the purposes of employee privacy and random testing.

RESPONSIBILITY: Board of Directors.
General Manager.
Supervisors.
Corporate Services.

SOURCE: Executive Order No. 12564, Drug-Free Workplace Act of 1988.
DOT Commercial License Regulations of 1989.
Board of Directors -- September 21, 1989.
Board of Directors -- December 21, 1989.

NIDA

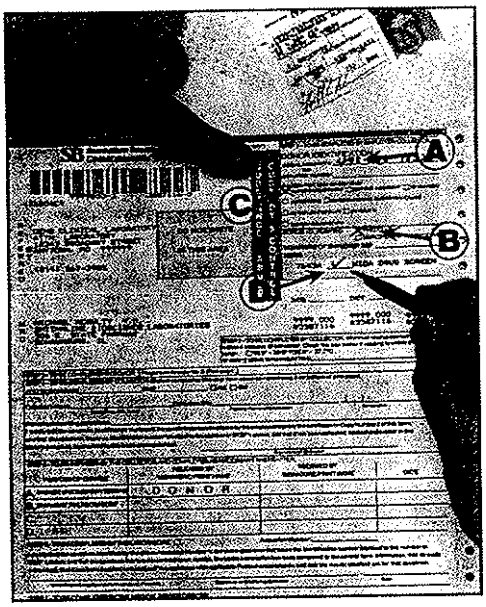
CHAIN-OF-CUSTODY PROCEDURE

Very specific guidelines have been set up by the National Institute on Drug Abuse (NIDA) for collection and submission of donors' urine specimens. This booklet contains easy-to-follow photographs that illustrate each step in the completion of the Chain-of-Custody Requisition. The requisition form that is used for NIDA collections serves as a "Chain of Custody" record also. The chain of custody record is one that shows the reason that a specimen was handled, who handled it and the date(s) that the handling occurred. This record is started at the time the specimen is collected and is continued through the entire testing process up until the time that the actual specimen is discarded.

There are also very specific guidelines for the preparation of the collection site and the actual collection of the urine specimen. Please refer to the Complete SmithKline Beecham Clinical Laboratories Manual for the Collection/Submission of NIDA Samples for these guidelines.

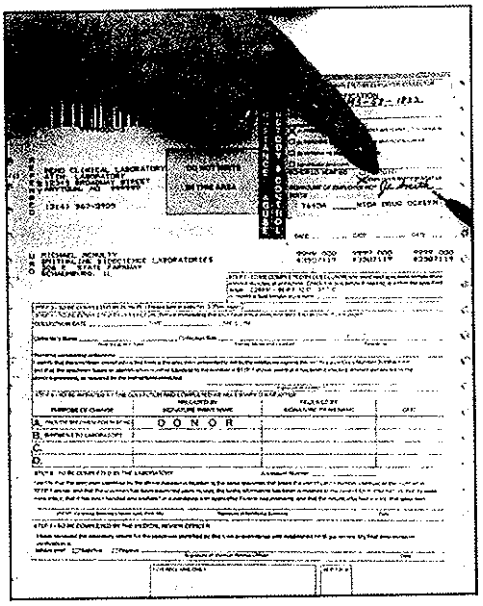
INSTRUCTIONS FOR COMPLETION OF INDIVIDUAL CHAIN OF CUSTODY REQUISITION

The instructions contained in this booklet are to be followed if you are using the SmithKline Beecham Requisition pictured on the front cove



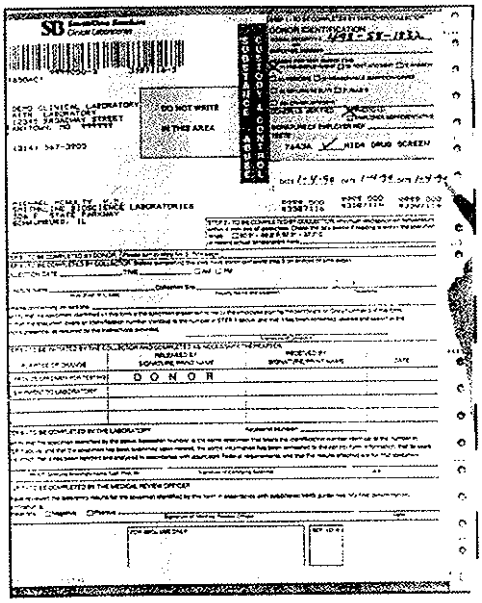
1.

A. The Collector Records the participant's (DONOR) Social Security # or employee I.D. #. **B.** The Collector verifies the participant's (DONOR) identification and specifies the method of verification in step 1. A photo I.D. is Required. **C.** The Collector should ask the Donor the Reason for the test and check the appropriate box. **D.** Check the test to be performed.



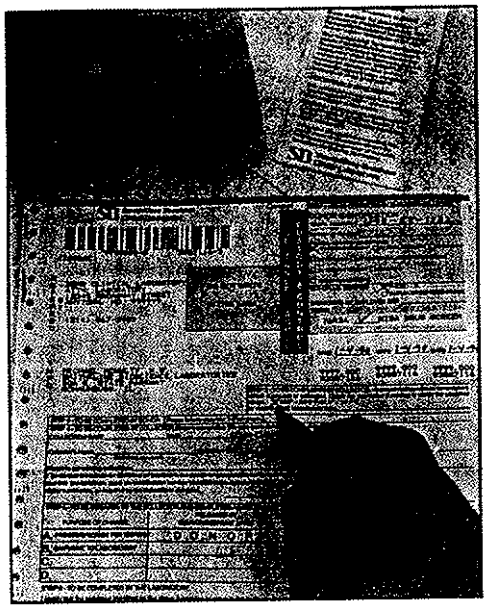
2.

If a photo I.D. is not available, a Representative of the employer must verify the participant's (DONOR) identification by signing the Requisition.



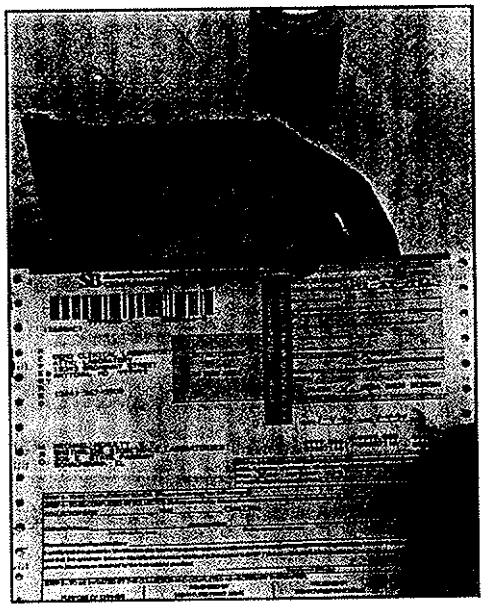
3.

Record the collection date on each of the Labe attached below the DONOR IDENTIFICATION Section of the Requisition.



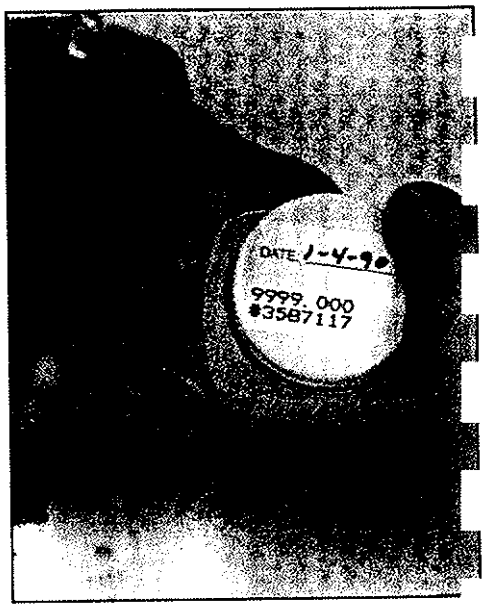
4.

The temperature of the urine specimen must be taken **WITHIN 4 MINUTES** of the collection. If the temperature is within the Prescribed Range place a checkmark in the box. If the temperature falls outside the Required Range an oral temperature is to be taken. Record the actual urine temperature by Degree in Step 2, and the oral temperature by Degree in Step 4 on the line following "Remarks Concerning Collection".



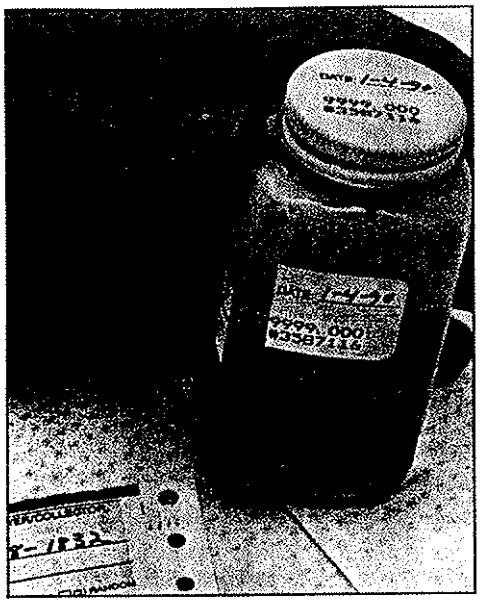
5.

Peel off one dated Label.



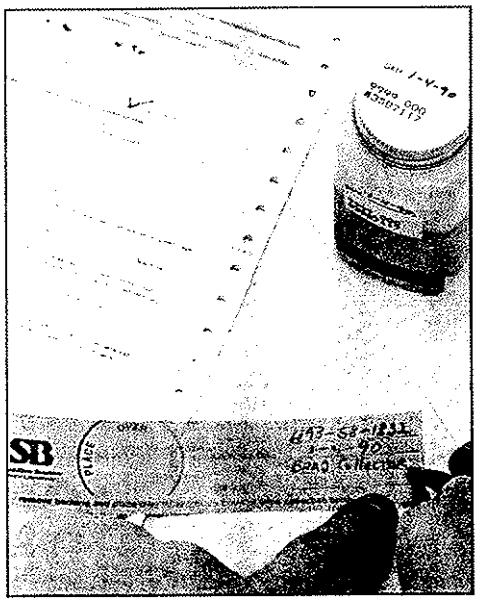
6.

And Place on the Lid of the Urine Collection Container.



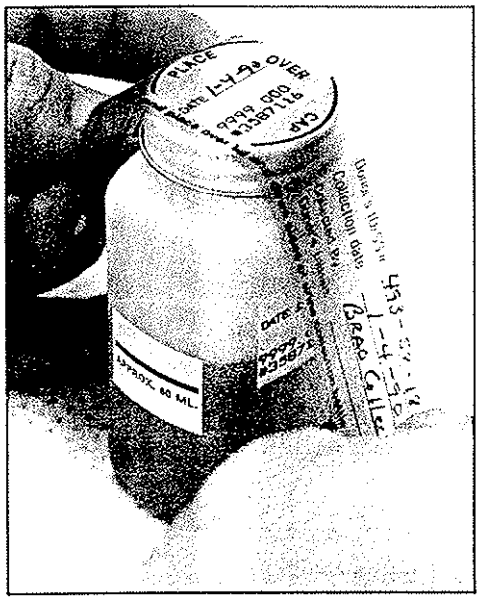
7.

Peel off a second Label and place it on the WIDE SIDE of the container approximately 2 inches from the bottom of the container. Use the third dated Label for your own records.



8.

The Collector then fills out the first three lines of the bottle custody seal.

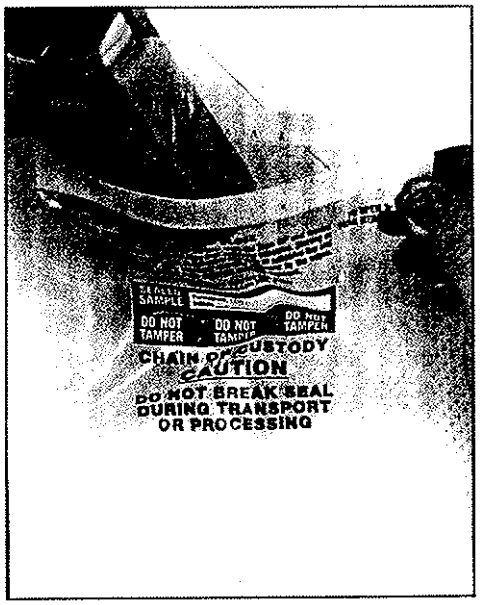


9.

The Collector should be sure that the lid of the container is securely tightened to prevent leakage. Remove the protective backing from the Custody Seal tape and place it over the top of the container as shown. The seal should cover the dated Label on the Lid and the dated Label on the wide side of the container.

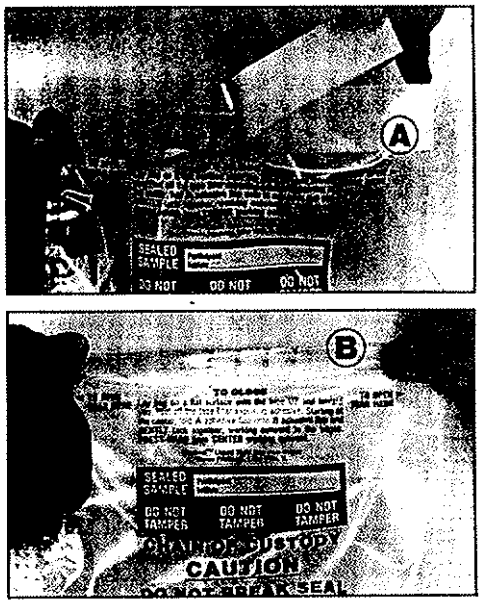
10.

Ask the participant (DONOR) to verify their Social Security # on the bottle Custody Seal and initial on Line 4 of the seal.



11.

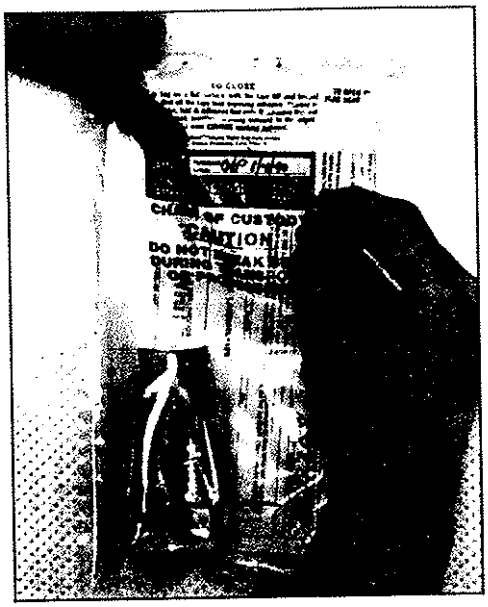
Place the Labeled and sealed urine specimen container into the tamper evident pouch (the printed side of the bag).



12.

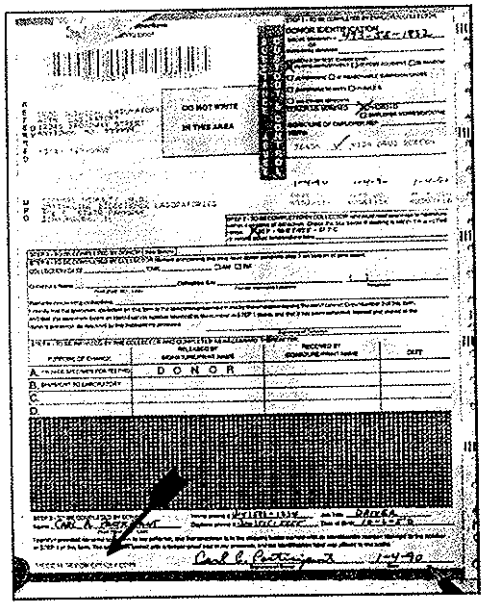
A. Remove the paper backing at the top of the chain of Custody Bag.

B. Seal the Custody Bag by pressing the "A" and "B" strips together.



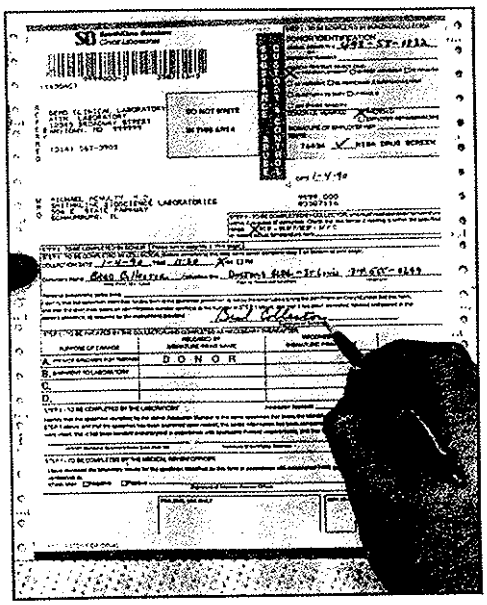
13.

Ask the participant (DONOR) to initial and date the sealed bag in the appropriate space at the top.



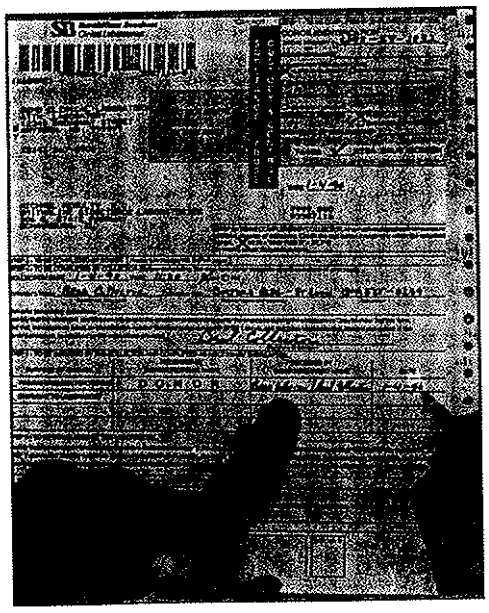
14.

Turn to the pink page of the form marked "MEDICAL REVIEW OFFICER." Ask the Participant (DONOR) to complete Step 3 near the bottom of the page.



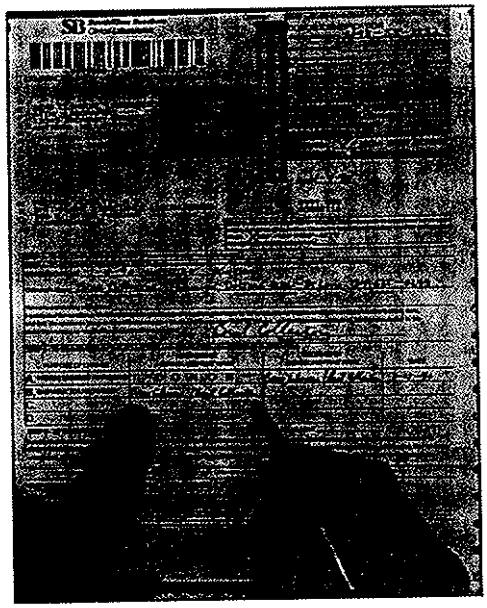
15.

Return to the front page of the form. Complete Step 4. Fill in the DATE and the TIME of collection. The Collector should fill in his/her name, the collection site name, location, and telephone number. Add any remarks about the collection on the line provided. The Collector must sign the line below to certify the information is accurate.



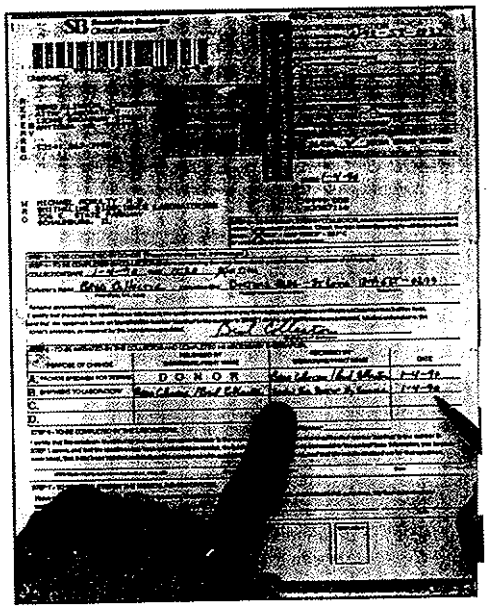
16.

Complete **Step 5** in the third column under the heading "Received by...," the Collector should PRINT AND SIGN his/her name and enter the date under the next column to the right.



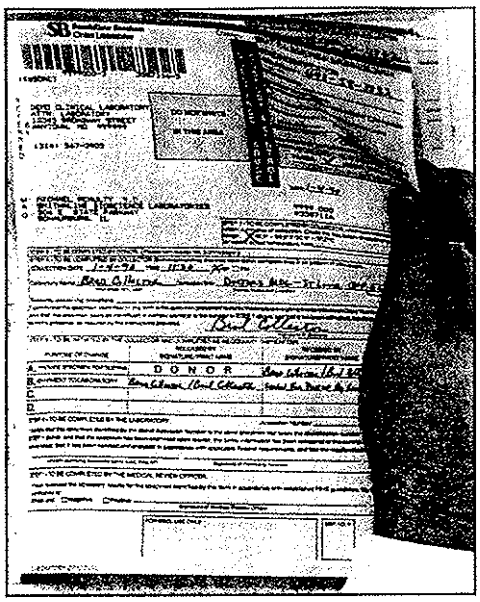
17.

On Line B in the second column (directly under the word "DONOR") the Collector should PRINT AND SIGN his/her name.



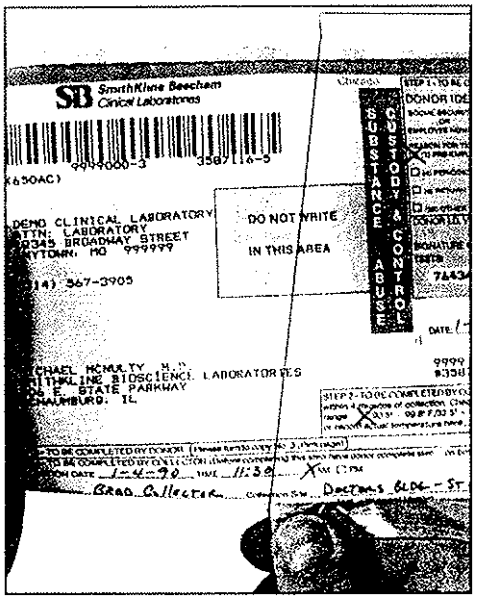
18.

Also on Line B, in the third column indicate the method of shipment (for example: "Sealed for pick-up by SmithKline Beecham Clinical Laboratories Courier" or "Sealed for shipment by..." and indicate the date in the fourth column.



19.

The Collector separates the white original copy (Top Page) and the Orange Laboratory duplicate (Second Page). Fold each of the two copies in half with the bar code showing.

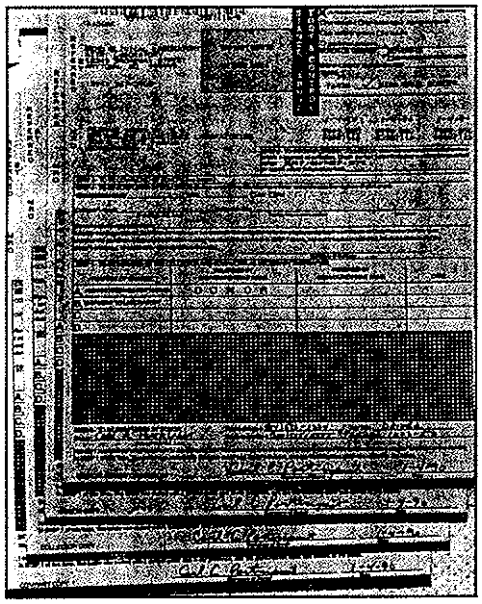


20.

Insert both copies into the clear pouch side of the bag so that the bar code on the original copy of the requisition is clearly visible through the clear side of the bag.

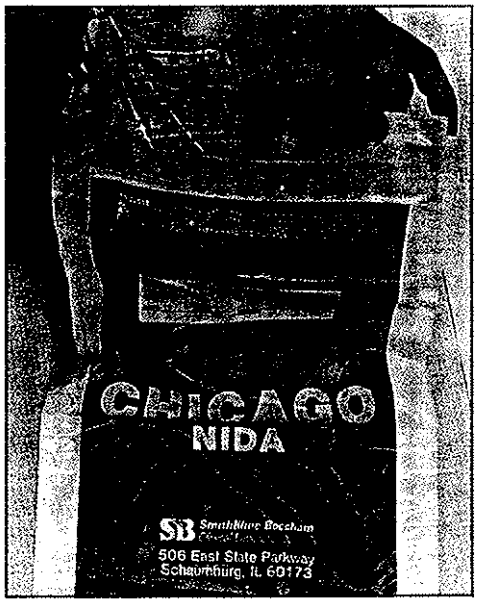
21.

Seal the pouch by removing the paper backing at the top of the pouch.



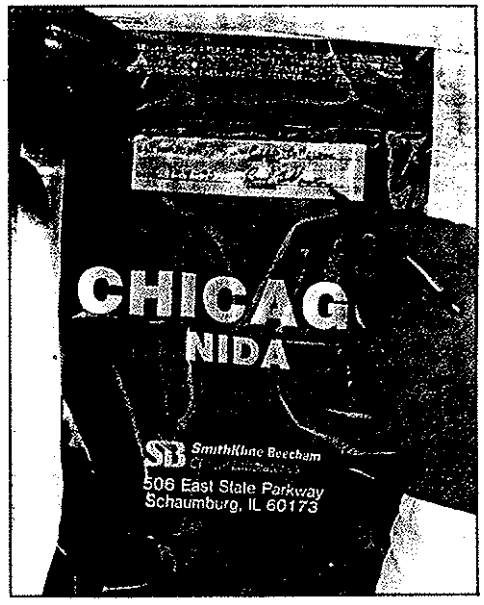
22.

The Collector mails the pink "Medical Review Officer" copy of the form to the M.R.O. indicated on the requisition. The participant (DONOR) is given the green copy. The Collector Retains the yellow copy at the collection site. The blue "Company" copy is mailed to the appropriate employer.



23.

Place the collection(s) into the large outer shipping bag(s) provided for shipment to Smith-Kline Beecham Clinical Laboratories. The colored border on Requisition must match the color of the outer shipping bag. See the back of this booklet for color code information.



24.

Seal the outer bag. The person sealing the bag must print and sign his/her name and indicate the date on the outside of the bag.
If picked up by SmithKline Beecham Clinical Laboratory Courier no further preparation is required. If sent by Overnight Courier place the outer bag(s) into appropriate packaging for shipment to a SmithKline Beecham Clinical Laboratory.

Our Client Response Centers are ready to answer any questions you may have about test procedures or proper submission of specimens. Please call the ***SmithKline Beecham*** *Clinical Laboratory* serving your area.

CENTRAL REGION LABORATORY LOCATIONS

ST. LOUIS	11636 Administration Drive, St. Louis, MO 63146	(314)567-3905
	Client Response	(800)669-8077
	Other	(800)669-7525
CHICAGO	506 East State Parkway, Schaumburg, IL 60173	(312)885-2010
	Client Response	(800)366-7525
	Other	(800)669-6995
CLEVELAND	6180 Halle Drive, Valley View, OH 44125	(216)328-7500
DALLAS	800 Sovereign Row, Dallas, TX 75247	(214)638-1301
DETROIT	24469 Indoplex Cir., Farmington Hills, MI 48018	(313)478-4414
FORT WAYNE	346 West Berry St., Fort Wayne, IN 46801	(219)423-1526
HOUSTON	8933 Interchange Drive, Houston, TX 77054	(713)667-5829
MINNEAPOLIS	1103 Second Ave., South, Minneapolis, MN 55403	(612)333-6521
NEW ORLEANS	4648 I-10 Service Road, Metairie, LA 70001	(504)889-2007
	2025 Gravier Street, New Orleans, LA 70112	(504)525-3964
		(800)223-2492
SAN ANTONIO	601 N. Frio, San Antonio, TX 78207	(512)225-5101
		(Texas) (800)292-7466

SmithKline Beecham
Clinical Laboratories

NIDA APPROVED TESTING FACILITIES

ATLANTA **(Peach Color)**	1777 Montreal Circle, Tucker, GA 30084	(800)729-6432
CHICAGO **(Red Color)**	506 East State Parkway, Schaumburg, IL 60173	(312)885-2010 (800)323-6270 (Outside IL)
DALLAS **(Yellow Color)**	8000 Sovereign Row, Dallas TX 75247	(214)638-1301
PHILADELPHIA **(Blue Color)**	400 Egypt Rd., Norristown, PA 19403	(800)523-5447 Ext. 4600

Name

Employer Name

Date

Collection Site

Collector Signature

This employee participated in the Drug Testing Program of Flint EMC on the above date. Results of this test may be obtained with a proper release.

EMPLOYEE: When completed, the above card should be detached and carried with you at all times.

COLLECTOR: Follow collection instructions below EXACTLY. One check box must be marked on each line.

THIS CHECKLIST IS TO BE COMPLETED BY THE COLLECTOR PERFORMING THE CHAIN OF CUSTODY COLLECTION PROCEDURE AND VERIFIED BY THE DONOR. **PAYMENT WILL NOT BE MADE FOR THIS SERVICE WITHOUT THE COMPLETED CHECKLIST. ALL QUESTIONS SHOULD BE ANSWERED YES.**

		YES	NO
1	Did Donor furnish a Photo I.D. or other designated acceptable identification?	☐	☐
2	Did Donor sign an Authorization/Consent Statement?	☐	☐
3	Was Donor's complete medication information recorded on the chain of custody form?	☐	☐
4	Did Donor print name and phone number of his physician who prescribed the medication on the chain of custody form?	☐	☐
5	Did Donor print initials and/or ID number on specimen bottle?	☐	☐
6	Was this label placed on specimen bottle?	☐	☐
7	Did the initials and/or ID number on label match the initials and/or ID # on the chain of custody form?	☐	☐
8	Did donor wash hands prior to collection?	☐	☐
9	If a **conventional, single stool restroom** was used for collection **(dry room method.)**	☐	☐
[a]	Were faucets taped or water cut-off valves closed?	☐	☐
[b]	Was bluing placed in the toilet?	☐	☐
[c]	Were toilet tank & flushing mechanism taped?	☐	☐
[d]	Was Donor informed not to flush toilet or attempt to wash hands after voiding?	☐	☐
[e]	Were all soap, cleansing agents or other possible adulterating materials removed from restroom?	☐	☐
10	If **restroom with stalls** was used and collector was **same** sex as donor, **(indirect observation method),**	☐	☐
[a]	Did collector accompany donor into the restroom and remain just outside the stall until donor finished voiding?	☐	☐
[b]	Was bluing placed in the toilet?	☐	☐
11	If **restroom with stalls** was used and collector was **not the same** sex as donor, e.g. female collector and male donor **(indirect observation method)**	☐	☐
[a]	Did collector accompany donor into the restroom and place bluing in all toilets?	☐	☐
[b]	Did collector inform donor not to flush toilet or attempt to wash hands after voiding?	☐	☐
[c]	Did collector then remain outside restroom door with door slightly ajar until donor finished voiding?	☐	☐
12	Did Donor transfer specimens from collection container to specimen bottle while being observed by collector?	☐	☐
13	Was urine checked for temperature between 90.5° - 98.8° F within four minutes?	☐	☐
14	Was urine checked for discoloration unusual odors or other possible adulteration?	☐	☐
15	Was specimen bottle sealed with Security Tape in presence of donor?	☐	☐
16	Did donor initial tape?	☐	☐
17	Was specimen bag or box sealed with Security tape, if provided?	☐	☐

I verify that the above procedures have been performed as indicated.

Collector's Signature _____ Date _____

Donor's Signature _____

Collection Facility Location _____

FLINT
ELECTRIC MEMBERSHIP CORPORATION
P. O. Box 308 • Reynolds, Georgia 31076-0308 • (912) 847-3415

MARCH 1, 1990

TO EMPLOYEES:

Flint's Board of Directors was so pleased with the results of the drug testing that they wanted "the world" to know the results and the fact that Flint employed only the highest quality employees. The following news release will be published in the area papers this week:

FLINT EMC VERIFIES DRUG FREE WORKPLACE

Last year when the Department of Transportation mandated drug testing programs be developed for truck drivers using state and federal highways, the Flint EMC Board of Directors decided to extend the program to all Flint employees, thereby promoting a safe, drug-free workplace.

Policies and procedures, including a drug rehabilitation program, were developed and employee and family educational meetings were held.

The actual testing of all 180 Flint EMC employees, the 11 member Board of Directors and Attorney took place in January. In the future, random testing will take place each month.

In the January testing, none of the 192 tested were found to have a drug problem, which certifies that Flint EMC has a safe, drug-free workplace. In addition, all new Flint EMC employees will be screened for use of illegal drugs prior to employment.

C. F. Hays, Jr., Flint EMC's Board President, said at the February Board Meeting, "The Board is indeed proud of these results. It attests to the splendid quality of Flint EMC's workforce."

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As Employee Assistance Coordinator, I would like to thank each of you for your patience upon waiting to be tested, working out some of the bottlenecks of the program as we went along, waiting on your results, the cooperation you exemplified in meeting the daily schedules, and the attitude and kindness you portrayed to the nurse at the collection site. The Manager of Parkway Med Stop called personally to commend the employees of Flint EMC for the way they conducted themselves at the collection site, advising that they could not speak for some of the other organizations in this manner.

Again THANKS to each of you for your support and your continued effort to make the company in which you work for drug-free.

Opal Wilder

ANSWERS TO
COMMONLY ASKED
QUESTIONS ABOUT

TESTING FOR SUBSTANCES OF ABUSE

SmithKline
Bio-Science
Laboratories

What is the specimen of choice for drug testing?

The specimen of choice for drugs other than alcohol is *urine*. One reason for this is that collection of urine samples is easy and noninvasive (as opposed to collection of blood samples). Furthermore, drugs are easily detected in urine, since the kidneys are the primary route by which drugs and their metabolites are excreted from the body.

How should urine specimens be collected?

The best method of collection, when practicable, is to have the participant urinate into a collection container under observation. The specimen should then be transferred to one or two specimen bottles, which should be carefully labeled and sealed with tamper-evident tape before leaving the collection area.

What special steps must be taken to keep specimens from being mixed up or tampered with after collection?

Immediately after collection, each specimen bottle must be clearly marked with a name and/or identification code and sealed with tamper-evident tape. A requisition form should then be filled out with the name and/or identification code of the person being tested, specifying which test is to be performed. As an additional legal safeguard, a chain-of-custody form should also be filled out. The taped specimen bottle, requisition form, and chain-of-custody form should be sealed in a tamper-evident chain-of-custody bag *before the specimen leaves the collection area.*

What is the purpose of the "chain-of-custody" form?

The chain-of-custody form documents the transfer of the specimen from time of collection through processing at the laboratory. This has proven very effective in preventing tampering with or switching of specimens. The chain-of-custody form is an important legal safeguard, since the chain of custody is the aspect of drug testing most often challenged in the court.

How should the specimens be transported?

When possible, specimens should be transported by a well-established courier service that can provide reliable chain-of-custody documentation and take the necessary precautions to preserve specimen integrity. Although chain-of-custody documentation is also available from the U.S. Postal Service and licensed commercial carriers, use of laboratory couriers allows an added degree of control over delivery schedules and transportation procedures. In addition, laboratory couriers have special training in specimen handling and chain-of-custody requirements.

How are drug tests performed?

Different laboratories use different methods, but a responsible laboratory will issue a positive test result only if a drug has been detected by two chemically different test methods. This is usually done by performing an initial *screening test* on all specimens and then following up with a *confirmatory test* on any specimens that tested positive on the initial screen. If a specimen tests negative on *either* of these tests, the result reported for each drug is "none detected." A positive result is issued only if *both* the screening test and the confirmatory test are positive.

What is a "screening" test?

Screening is the initial test performed on urine specimens to determine the presence or absence of drugs. When a drug *is* present, the screening test can also establish the probable identity of this drug. The most important quality of a screening method is that it is highly sensitive to the presence of the drugs for which the test is being conducted. However, highly sensitive tests tend to be less reliable at identifying exactly which drugs are being detected. For example, a screening test for amphetamines might be positive when certain commonly used decongestants are present. For this reason, it is *absolutely essential that all positive screening results be double-checked with a more specific confirmatory method.* The confirmatory test distinguishes among substances that would cause the screening test to be positive.

What screening method does SKBL *use?*

The screening method we use is an enzyme immunoassay referred to by the trade name EMIT. This is one of the most reliable and widely used screening methods.

What drugs can be detected by the EMIT *screen?*

The EMIT assay can detect approximately 35 different drugs of abuse, including the following commonly abused drugs.

Amphetamines
- *d*-Amphetamine
- Methamphetamine

Barbiturates
- Amobarbital
- Butalbital
- Butabarbital
- Pentobarbital
- Phenobarbital
- Secobarbital

Benzodiazepines
- Chlordiazepoxide (Librium)
- Clorazepate (Tranxene)
- Diazepam (Valium)
- Oxazepam (Serax)

Opiates
- Codeine
- Heroin (detected as morphine)
- Hydromorphone
- Morphine

Other Drugs
- Cannabinoids (marijuana metabolites)
- Cocaine (detected as benzoylecgonine)
- Methadone
- Methaqualone (Quaalude)
- Phencyclidine (PCP)
- Propoxyphene (Darvon)

What is confirmatory testing?

When a specimen tests positive on the initial screen, the positive result must be confirmed by a chemically different method to identify exactly which drug is being detected. Although

such *confirmatory* methods are as sensitive as screening methods, the most important characteristic of a confirmatory test is that it is highly *specific*. That is, it can tell whether the drug detected by the screening test is actually a substance of abuse. Common confirmatory methods include high-performance thin-layer chromatography (HPTLC), gas chromatography (GC), and gas chromatography/mass spectrometry (GC/MS). SKBL makes appropriate use of all of these methods.

Why is "GC/MS" referred to as the most accurate confirmatory test method?

GC/MS is an extremely sensitive and accurate procedure that identifies each chemical compound on the basis of its unique molecular structure (or "molecular fingerprint"). GC/MS is more specific than most other confirmatory methods. However, it is also more costly, and in most cases its additional specificity is not required for a highly accurate, completely reliable test result. In these cases, other confirmatory methods can be used with an equal degree of confidence.

How reliable is properly performed substance-abuse testing?

A confirmed positive result offers virtually 100 percent assurance that the specified drug is actually present in the urine specimen.

What does a positive test result really say about drug usage?

A positive test result says only that the drug in question is present in the specimen. It does *not* indicate how the drug was used. Nor can it determine whether the drug was obtained legally or illegally. In addition, tests for drugs of abuse in urine provide only a very general estimation of the time of drug use. They give little indication of the degree to which the user's behavior was affected by the drug at the time the urine was collected. Nor do they distinguish between chronic and occasional drug users.

It is important to note that a negative test result may not mean that the individual was free of any and all drugs. Tests are conducted only for those substances specified in the test request. Other substances could be present in the urine but would not be detected. It is also possible for a drug to be present at a concentration *below the limit of detection* of the testing method, which means that the drug would be present at such low levels that it would not be detected.

What are the limits of detection?

The limit of detection (LOD) of a test is the lowest concentration of a drug that the test is able to detect. In general, the limit of detection for most drugs or drug classes is in the range of 0.1-1.0 mg/liter (see Table 2). If a drug is present at a concentration below a test's LOD, the drug will not be detected. Drugs that are rapidly cleared from the body are more likely to be present at levels below the LOD. This is why the time that has passed between drug use and collection of the urine sample is important. The longer the elapsed time, the more likely it is that the drug concentration in the urine will be below the LOD.

Table 2.
Limits of Detection for Drugs in Urine

Drug or Drug Class	*Limits of Detection (mg/liter)**
Amphetamines	0.7–1.0
Barbiturates	0.3–3.0
Benzodiazepines	0.3–3.0
Cannabinoids	0.05 (50 ng/ml)
Cocaine metabolite	0.3
Methadone	0.3
Methaqualone	0.3
Opiates	0.3–3.0
Phencyclidine (PCP)	0.075 (75 ng/ml)
Propoxyphene	0.3

*Where a range of values is given, the limit of detection varies according to the specific drug and/or metabolites present

Don't drug tests discriminate against blacks and Hispanics by giving a positive result for marijuana in response to high levels of melanin (a skin pigment)?

No. Researchers at the University of Mississippi have investigated this question and have concluded that melanin does not cause false-positive results.

What about other interferences? Can other medications or foods produce a positive result in someone who is not abusing drugs?

Some over-the-counter (OTC) medications contain high concentrations of decongestants that will produce a positive result for amphetamines on the EMIT screen. Appropriate confirmatory testing will tell whether the drug detected is an amphetamine or an OTC decongestant. In addition, certain types of poppy seeds, if consumed in sufficient quantity, can produce a positive result for opiates. Since the drug contained in these seeds (in minute quantity) is related to the opiates used by drug offenders, there is no way to completely eliminate this potential problem.

Is it possible for people to test positive for cannabinoids if they have only passively inhaled marijuana smoke from nearby smokers?

Although the probability of this happening is remote, it is possible at the limit of detection used by many laboratories (20 ng/ml). For this reason, SKBL generally uses a limit of detection for cannabinoids of *50* ng/ml, which is usually high enough to rule out passive inhalation as a reason for a positive test result.

Is "crack" detected as cocaine?

Yes. "Crack" is a form of cocaine and is detected as cocaine or its metabolite.

How can you be sure that specimens won't be mixed up during the testing process?

The most important safeguard against this type of error is to choose a well-run, experienced laboratory with a sound quality assurance program. At SKBL, each specimen is marked with its own laboratory identification numbers when it arrives at the laboratory, and these numbers are carefully checked before a sample of the specimen is removed for the initial screening test. If this sample tests positive on the screen, then a *new* sample is taken from the *original specimen* and a confirmatory test is performed to make sure there were no errors (including specimen mix-up) in the screening process.

MORE NONTRADITIONAL IDEAS

Bill James, General Manager
Northeastern REMC
Indiana

- Discussed service territory - "rurban."
- Annexation problems - "baloney warfare - slice at a time."
- Shared business services section at his co-op - three employees working with developers.
- Must play hard ball to survive.
- Worked with local IOU.
- Different ways to get cooperative name before public:

  Bill inserts, printed napkins, coin purses, magnets, teach CPR (adult and infant), safety programs (no lost time accident at his co-op since January 1986), jackets with logos, uniforms, on-hold message concept, REMC image messages, 10-day orientation program for directors, education on geo-thermal units.

The Central Georgia
Electric Membership Corporation

P.O. Drawer 309 / 923 S. Mulberry Street / Jackson, Georgia 30233 / Phone (404) 775-7857

OPTICAL DISK AS AN APPLIED TECHNOLOGY IN CONSUMER HISTORY RECORDS

I. Strategic Decisions

II. What were Central Georgia EMC's Options

III. Our Goals with the Project

IV. Existing Situation with Consumer History Records

V. Why we made a Decision to go with Optical Disk Technology

VI. How Central Georgia's Optical System Operates

VII. Central Georgia's Consumer Record Indexing

STRATEGIC DECISION

Our vision for the decade of the 90's is to give our customers outstanding service and support. Optical Disk Technology is the medium that we have chosen for the consumer history records to remain as leaders in productivity and efficiency in our market place. The options were considered, the decision was made. The contract has been signed.

What were Central Georgia's options?

1) Stay in paper

2) Micro film

3) Optical Disk Technology

Our goals with the project

1) We wanted to provide advanced customer service

2) Achieve faster rate of record retrieval

3) Eliminate our problem with misfiles

4) Save floor space

Existing situation in consumer history records

1) Central Georgia has 22,000 active consumer history records plus inactive records.

2) Central Georgia Had 29 Filing cabinets filled to capacity.

Why we made the decision to go with Optical Disk Technology

1) Optical disk has improved our customer service by allowing us to find our consumer history records quickly and efficiently.

2) We use one employee where we did use three or four.

3) Optical disk has become a legal medium.

4) No out of file conditions.

5) Easy to use.

System Functions

The primary system functions include:

* Storing
* Retrieving
* Updating
* Deleting

What is an optical disk?

Photo of a 12" and 5-1/4" optical disk

The TAB Optical Disk

A thin glass substrate is covered with the working medium. The image is burned on optical disk. A strand of hair is 72 microns in diameter. The image is one micron in diameter.

Optical disk is preformated and pretested

WORM Technology

The optical disk uses WORM technology (Write Once Read Many). The image is permanent. It cannot be erased, written over, or altered.

DRAW Technology

The optical disk also utilizes DRAW technology (Direct Read After Write). This gives us immediate verification that the image was written correctly. There is no processing time, like microfilm, as the image is immediately retrievable.

Optical Disk Storage and Handling

There are no stringent storage and handling requirements with an optical disk.

TAB Laser-Optic Filing System is composed of two major components:

* Hard disk (Index)
* Optical disk drive (Image Stored or Actual file)

Photo-Series 2000 System

Photo scanner auto feed mechanism. (Images can be auto fed)

Photo scanner flatbed (11" by 17" in size)

The flatbed can copy documents up to 11" by 17".

Photo display with menus. (Monitor with menus)

Photo Display with image & application (side by side)

Laser Printer - Our system uses the laser printer

The 12" optical disk has a capacity for storing approximately 50,000 8-1/2" by 11" text pages. The 5-1/4" optical disk will store approximately 12,500 8-1/2 by 11" pages which has been increased from 8000 documents.

Media space comparison

Doing a comparison of media space requirements between paper, film, and optical disk, it requires 25 drawers to house 50,000 sheets of paper, 20 rolls of 16mm film, to one 12" optical disk storing the same capacity.

Media space comparison

A second comparison shows the actual cubic inches of space required to house the same various media types. With the Laser-Optic Filing System, there are no out-of files. All files are available at all times to multiple users. There are no misfiles or lost files with the system.

Comprehensive indexing

More than one application can run on the same system. The indexing scheme will allow for up to 14 index fields to be used and up to 60 characters per field.

Rapid retrieval

The greatest benefit of the Laser-Optic system is to be able to retrieve documents when you need them and quickly.

Update capabilities

The file management aspect of the software has been designed to recognize that a file may need to change over time.

Delete document capabilities

The delete function is used when there is no longer a need to be able to access documents. Legal requirements may have been met and internal policy may allow for deletion. The feature does not erase the image but merely removes the reference to access it.

Modular system design

Laser-Optic has been designed with a modular nature in mind. Any new enhancements or improvements will be field upgradeable. The basic system will not become obsolete but rather grow as technology grows.

What are your current information costs?

Comparison of paper system costs to Laser-Optic

Change outs, misfiles and lost files are eliminated. Staffing, supplies, purging, and floor space are reduced.

Comparison of microfilm system costs to Laser-Optic

Preparation costs, and injury to media is reduced. Turn around time and film duplication is eliminated. Retrial time is greatly reduced.

Paper files go to shredder

*For the decade of the 90's, CGEMC is dedicated to innovative methods of improving consumer service at the lowest practicable costs. A Laser-Optic system is a primary method toward this goal.

CFC UPDATE

Jim Boatman, CFC

- o Expressed appreciation for opportunity to attend council meeting.

- o Gave update on Colorado Ute and Deserett situation. Colorado Ute filed Chapter 11 bankruptcy. Had been experiencing difficulty for some time. Defaulted in payment to CFC. This effected the program in many ways.

- o Tri-State voted to rescind decision to merge.

- o All cooperatives received a letter from CFC about Colorado Ute and Deserett situation.

- o Programs: CFC Integrity Fund - have accumulated round of visits. Loss of territory is big issue. This fund helps local cooperatives fight takeover - $900,000 has been given to cooperatives in grants for this purpose. 750 cooperatives made contributions to fund. Also helps telephone cooperatives.

  Small Business Investment Community (SBIC) - feels this is a very promising program.

MINUTES
1990 RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL MEETING

The Rural Electric Management Development Council held its annual conference at Caesars Tahoe Resort in Lake Tahoe, Nevada on May 21-23, 1990.

Council chairman Harold Smith opened the meeting at 8:30 A.M. on Monday, May 21 and extended a welcome to those in attendance with special recognition to those who were attending for the first time. Each person present introduced him/herself. (See registration list.)

Christine Beane was officially named as secretary to the Council.

Mr. Smith thanked Dan Kessler, Wells REC, for hosting the meeting as well as making the meeting arrangements. The golf outing planned for the previous day was cancelled due to the weather. Mr. Kessler introduced members of his staff present: Diane Griswold, executive secretary; Clay Fitch, Manager, Administration and Finance; and Warren Linnell, Manager, Operations and Engineering.

Mr. Smith also expressed appreciation to Layton Wheeler, chairman of the Membership Committee, for his hard work. This year's registration is the highest ever. Mr. Smith said he had received regrets from Ed Brown (Four County EMC, North Carolina); Bob Roberts (Pioneer REC); and Wayne Wilkins, Davidson EMC).

Mr. Smith recognized Paul Bienvenue, Program Chairman, to give an overview of the program. Mr. Bienvenue thanked his committee and stated the theme of this year's program was "Decade of Decision." He thanked those persons who had agreed to be participants on the program.

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On Wednesday, May 23, 1990, Chairman Harold Smith convened the membership for the annual business session of the Council. Chairman Smith stated this business session would conclude his three-year term as chairman of the council.

Allen Ritchie, treasurer, was recognized for a report. The report covered the period of May 10, 1989 to May 16, 1990 and indicated reserve funds of $42,940.22. To date, 32 systems had paid current dues. Mr. Ritchie stated about 75% of the charges incurred with the research project had been paid. He also stated the Council would pick up the fee for the group event on Tuesday evening. There was a motion and a second and the treasurer's report was approved as presented.

Chairman Smith recognized Mike Gustafson, chairman of the Nominating Committee, for a report. Mr. Gustafson expressed his appreciation to his committee (Ron Knouse, Derl Hinson, and Bob Bauman) for their work. He said this year's process was a little different in that Wayne Johnson (who was completing his term as vice chairman) was no longer with a cooperative and therefore would not be moving into the position of chairman. He made a motion, on behalf of the Nominating Committee, that the following nominations be approved (nominees are underlined):

Officers	Chairman -	Jim Kiley	Term expires 1993
	Vice Chairman -	Joe Satterfield	Term expires 1993
	Treasurer -	Allen Ritchie	Term expires 1992
	Secretary -		Appointed by chairman
Program Committee			
	Chairman -	Paul Bienvenue	Tern expires 1992
		Dan Kessler	Term expires 1991
		Dorothy Postel	Term expires 1993
		Dan Bryan	Term expires 1992
		Bob Roberts	Term expires 1992
Nominating Committee			
	Chairman -	Bob Bauman	Term expires 1992
		Ron Knouse	Term expires 1991
		Derl Hinson	Term expires 1992
		Dave Pruitt	Term expires 1993
Membership Committee			
	Chairman -	Layton Wheeler	Term expires 1993
		Jean Stansell	Term expires 1991
		Marlynn Cox	Term expires 1992
		Wayne Swann	Term expires 1992
Management Research Committee			
	Chairman -	Paul Weatherby	Term expires 1991
		Doyle Hines	Term expires 1991
		Bill James	Term expires 1993
		Mike Gustafson	Term expires 1993
		Kim Colberg	Term expires 1993

There being no further nominations, the slate of candidates was approved as presented.

Layton Wheeler, chairman of the Membership Committee, was recognized for a report. He stated the Council had received eight new applications for membership and most of these cooperatives were represented at the meeting. Recertification was requested from five members. These are detailed in the attached report from the Membership Committee. With a motion and a second, the new members and those requesting recertification were approved. Certificates were presented to new members as well as those being re-certified.

Joe Satterfield, chairman of the Management Research Committee, was recognized for a report. He thanked all those who participated in the research project and particularly Dr. Scott Herriott. The report and findings prepared by Dr. Herriott will be included in the proceedings book prepared by the secretary. Mr. Satterfield encouraged Council members to give the Research Committee input on future projects.

Mr. Smith thanked Paul Bienvenue and the Program Committee for the excellent program this year. All feedback concerning the program indicated everyone felt the program topics were timely. He said the Program Committee will probably plan to meet at the NRECA annual meeting to discuss the program for 1991.

The 1991 meeting will be held in San Antonio, Texas with Guadalupe Valley EC hosting the meeting. Doyle Hines, Manager, stated San Antonio was an excellent meeting site with a lot of historical places to visit and excellent shopping.

Derl Hinson, Georgia EMC, extended an invitation for the Council to meet in the Atlanta area in 1992; Paul Bienvenue extended an invitation from the Virginia-Delaware delegation to meet in the Williamsburg area sometime in the future; and Tom Upshaw, Palmetto Electric, extended an invitation for the group to meet at Hilton Head. A more central meeting place would be in the Branson, Missouri area which also has excellent meeting facilities. A motion was made that the officers consider the suggested potential sites and make the final decision. There was a second and the motion carried.

Chairman Smith asked for comments from those present concerning this year's meeting. Earl Weeks stated he had heard many new ideas and the discussions were refreshing. All felt the meeting had been very beneficial. Tom Upshaw suggested allowing time on the planned program to exchange ideas.

Wayne Johnson was recognized and everyone wished him well in his future endeavors.

Chairman Smith again expressed appreciation to Dan Kessler and his Wells REC staff for the excellent meeting place and their hospitality.

Christine Beane, outgoing secretary, was recognized with a plaque and appreciation expressed for the six years she had served as secretary as well as the many years she has compiled the proceedings book and mailed to each participant/member.

Mr. Smith again thanked the Council for their cooperation in the past three years. He said the REMDC group was one of the finest he had ever worked with.

There being no further business to come before the Council, the meeting adjourned.

Respectfully submitted,

Christine W. Beane

Christine W. Beane, Secretary

RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL

MEMBERSHIP COMMITTEE

1990 REPORT

COMMITTEE:

Layton Wheeler, Chairman
Delaware

Marlynn Cox
Four County
Mississippi

Jean Stansell
Central Georgia

Wayne Swann
Southern Maryland

Recertification was requested from five (5) members:

Central Area Data
Processing Cooperative
St. Peters, Missouri

Delaware Electric Cooperative
Greenwood, Delaware

Flint EMC
Reynolds, Georgia

Lumbee River EMC
Red Springs, North Carolina

Southeast Iowa Electric
Association
Mt. Pleasant, Iowa

Lumbee River EMC was the only member not returning the recertification. Correspondence from Ronnie Hunt is attached.

Membership invitations and/or meeting attendance was sent to the following:

Charles Staples, General Manager
Aiken Electric Cooperative, Inc.
P. O. Box 417
Aiken, South Carolina 29801

Rick Newland, Manager
Anoka Electric Cooperative
2022 N. Ferry Street
Anoka, Minnesota 55303

E. E. (Skip) Strickland, Jr., Manager
Berkeley Electric Cooperative, Inc.
P. O. Box 1234
Moncks Corner, South Carolina 29461

James P. Ramseyer, Manager
Blachly-Lane County Co-op Electric
Association
90680 Highway 99
Eugene, Oregon 97402

Charles E. Dalton, Manager
Blue Ridge Electric Cooperative, Inc.
P. O. Box 277
Pickens, South Carolina 29671

Doyle D. Marlett, General Manager
Caddo Electric Cooperative
Box 70
Binger, Oklahoma 73009

Gary M. Bullock, General Manager
Carroll EMC
P. O. Box 629
Carrollton, Georgia 30117

Donald J. VanDeest, General Manager
Central Wisconsin Electric Co-op
P. O. Box 255
Iola, Wisconsin 54945

William C. Phillips, General Manager
Clay Electric Co-op, Inc.
P. O. Box 308
Keystone Heights, Florida 32656

James M. Reynolds, General Manager
Community Electric Cooperative
P. O. Box 267
Windsor, Virginia 23487

Jimmy D. Springs, General Manager
DeWitt County Electric Co-op, Inc.
P. O. Box 231
Cuero, Texas 77954

Melvin D. Nicholas, General Manager
Eastern Iowa Light & Power Cooperative
E. Fifth & Sycamore Streets
Wilton, Iowa 52778

David Bruce Weaklend, Manager
Farmers Electric Co-op, Inc.
P. O. Box 330
Greenfield, Iowa 50849

Derl J. Hinson
Executive Vice President
Georgia EMC
151 Ellis Street, N.E., Suite 422
Atlanta, Georgia 30303

Jimmy White, Manager
Gibson County EMC
P. O. Box 47
Trenton, Tennessee 38382

John M. McBride, General Manager
Guernsey-Muskingum Electric Co-op, Inc.
17 South Liberty Street
New Concord, Ohio 43762

John Browning, General Manager
Haywood EMC
1819 Asheville Road
Waynesville, North Carolina 28786

Bruce Bosworth, General Manager
Iowa Lakes Electric Cooperative, Inc.
1724 Central Avenue
Estherville, Iowa 51334

Ms. Connie M. Shireman
General Manager
Jo-Carroll Electric Co-op, Inc.
P. O. Box 390
Elizabeth, Illinois 61028

Jack Wolfe, Manager
Mid-Carolina Electric Co-op, Inc.
P. O. Drawer 669
Lexington, South Carolina 29072

James O. Baker, General Manager
Middle Tennessee EMC
810 Commercial Court
Murfreesboro, Tennessee 37129

Roger W. Geckler, General Manager
Minnesota Valley Electric Cooperative
P. O. Box 125
Jordan, Minnesota 55352

Gerald W. Freehling, General Manager
Mitchell EMC
P. O. Box 409
Camilla, Georgia 31730

Grant J. Earl, General Manager
Moon Lake Electric Association, Inc.
P. O. Box 278
Roosevelt, Utah 84066

Richard L. Arnold, Manager
N. W. Electric Power Co-op, Inc.
P. O. Box 312
West Grand Avenue
Cameron, Missouri 64429

John Bellgowan, General Manager
New Hampshire Electric Co-op, Inc.
RFD 4, Box 2100
Plymouth, New Hampshire 03264

Wayne D. Keller
Executive Vice President
North Carolina Association of
Electric Co-ops
P. O. Box 27306
Raleigh, North Carolina 27611

Lyle D. Brigle, Manager
North Western Electric Co-op, Inc.
P. O. Box 391
Bryan, Ohio 43506

J. C. Christopher, Manager
Northwestern Electric Co-op, Inc.
P. O. Box 2707
Woodward, Oklahoma 73802

W. Douglas Bechtel, General Manager
Orcas Power & Light Company
P. O. Box 187
Eastsound, Washington 98245

Mark A. Glaess, General Manager
Oregon RECA
575 Union Street, N.E.
Salem, Oregon 97301

G. Thomas Upshaw, General Manager
Palmetto Electric Co-op, Inc.
P. O. Box 21239
Hilton Head, South Carolina 29925

W. T. Shows, Manager
Pearl River Valley Electric Power
Association
P. O. Box 1217
Columbia, Mississippi 39429

Steve A. Glaim, General Manager
Polk-Burnett Electric Co-op
1000 Highway 35
Centuria, Wisconsin 54824

Cecil E. Viverette, Jr.
General Manager
Rappahannock Electric Cooperative
P. O. Box 7388
Fredericksburg, Virginia 22404

John Q. Adams, General Manager
San Bernard Electric Co-op, Inc.
P. O. Box 158
Bellville, Texas 77418

C. ~~Charles~~ J. Hoke, General Manager
Southern Nebraska RPPD
P. O. Box 1687
Grand Island, Nebraska 68802

Marv Athey, General Manager
Trico Electric Co-op, Inc.
P. O. Box 35970
Tucson, Arizona 85740

Noble Ray Stallons, General Manager
Utilities District of Western
Indiana REMC
P. O. Box 427
Bloomfield, Indiana 47424

Ross L. Dohlen
Valley Electric Association
P. O. Box 237
Pahrump, Nevada 89041

Applications for membership have been received from:

Central Wisconsin Electric Co-op
Iola, Wisconsin
Donald J. VanDeest, General Manager

Eastern Iowa Light & Power Co-op
Wilton, Iowa
Melvin D. Nicholas, General Manager

Georgia EMC (Statewide)
Atlanta, Georgia
Derl J. Hinson
Executive Vice President

Iowa Lakes Electric Cooperative
Estherville, Iowa
J. Bruce Bosworth, General Manager

North Western Electric Co-op, Inc.
Bryan, Ohio 43506
Lyle D. Brigle, Manager

Palmetto Electric Co-op, Inc.
Hilton Head, South Carolina
G. Thomas Upshaw, General Manager

Southern Nebraska RPPD
Grand Island, Nebraska
C. J. Hoke, General Manager

Noble Ray Stallons, General Manager
Utilities District of Western
Indiana REMC
P. O. Box 427
Bloomfield, Indiana 47424

Recertification for 1988 has been received from:

Davidson EMC
Lexington, North Carolina
Wayne Wilkins, Manager

Four County EMC
Burgaw, North Carolina
Ed Brown, Manager

ACTION TO BE TAKEN

1. **Mr. Chairman, the Membership Committee recommends the acceptance of seven (7) new members:**

Central Wisconsin Electric Co-op
Iola, Wisconsin

Eastern Iowa Light & Power Co-op
Wilton, Iowa

Georgia EMC (Statewide)
Atlanta, Georgia

Iowa Lakes Electric Cooperative
Estherville, Iowa

North Western Electric Co-op, Inc.
Bryan, Ohio

Palmetto Electric Co-op, Inc.
Hilton Head, South Carolina

Southern Nebraska RPPD
Grand Island, Nebraska

Utilities District of Western
Indiana REMC
Bloomfield, Indiana 47424

2. **The Committee additionally recommends 1990 recertification of the following members:**

Central Area Data Processing Cooperative
St. Peters, Missouri

Delaware Electric Cooperative
Greenwood, Delaware

Flint EMC
Reynolds, Georgia

Southeast Iowa Electric Association
Mt. Pleasant, Iowa

And further, 1988 recertification of the following members:

Davidson EMC
Lexington, North Carolina

Four County EMC
Burgaw, North Carolina

Systems to recertify in 1991:

Four County Electric Power Association
Columbus, Mississippi

Lee County Electric Cooperative, Inc.
North Fort Myers, Florida

Our present membership with this action is as follows:

A. Daniel Murray, General Manager
Adams Electric Cooperative, Inc.
153 North Stratton Street
Gettysburg, Pennsylvania 17325

Douglas W. Johnson, Executive Vice President
Blue Ridge Electric Membership Corporation
Caller Service 112
Lenoir, North Carolina 28645

Joe Satterfield, General Manager
Blue Ridge Mountain EMC
P. O. Box 9
Young Harris, Georgia 30582

David J. Batten, General Manager
Brunswick EMC
P. O. Box 826
Shallotte, North Carolina 28459

Robert J. Bauman, General Manager
Butler County REC
P. O. Box 98
Allison, Iowa 50602

David Pruitt, General Manager
Cap Rock Electric Cooperative, Inc.
P. O. Box 700
Stanton, Texas 79782

Michael D. Gustafson, General Manager
Cass County Electric Cooperative, Inc.
P. O. Box 8
Kindred, North Dakota 58051

Gary J. Hobson, General Manager
Central Area Data Processing Cooperative
P. O. Box 408
St. Peters, Missouri 63376

George L. Weaver, ~~General Manager~~ President
Central Georgia EMC
P. O. Box 309
Jackson, Georgia 30233

Donald J. VanDeest, General Manager
Central Wisconsin Electric Co-op
P. O. Box 255
Iola, Wisconsin 54945

Bob Mackey, Acting General Manager
Clark County REMC
P. O. Box L
Sellersburg, Indiana 47172

Paul E. Weatherby, President
Cobb EMC
P. O. Box 369
Marietta, Georgia 30061

H. Wayne Wilkins, General Manager
Davidson EMC
P. O. Box 948
Lexington, North Carolina 27293

E. Paul Bienvenue, General Manager
Delaware Electric Cooperative, Inc.
P. O. Box 600
Greenwood, Delaware 19950

Melvin D. Nicholas, General Manager
Eastern Iowa Light
& Power Cooperative
E. Fifth & Sycamore Streets
Wilton, Iowa 52778

Dan Bryan, General Manager
Farmer's Electric Cooperative, Inc.
P. O. Box 680
Chillicothe, Missouri 64601

Harold M. Smith
Flint EMC
P. O. Box 308
Reynolds, Georgia 31076

Edward E. Brown, Jr., General Manager
Four County EMC
P. O. Box 667
Burgaw, North Carolina 28425

Earl W. Weeks, General Manager
Four County Electric Power Association
P. O. Box 351
Columbus, Mississippi 39703

Derl J. Hinson
Executive Vice President
Georgia EMC
151 Ellis Street, N.E., Suite 422
Atlanta, Georgia 30303

Milton Doyle Hines, General Manager
Guadalupe Valley Electric Cooperative, Inc.
P. O. Box 118
Gonzales, Texas 78629

John A. Cheney, General Manager
Hancock-Wood Electric Cooperative, Inc.
P. O. Box 188
North Baltimore, Ohio 45872

Bruce Bosworth, General Manager
Iowa Lakes Electric Cooperative
1724 Central Avenue
Estherville, Iowa 51334

Randall Pugh, President/CEO
Jackson EMC
P. O. Box 38
Jefferson, Georgia 30549

Hollis E. (Gene) Joslin, General Manager
Johnson County Electric Cooperative
Association
P. O. Box 16
Cleburne, Texas 76033

James D. Sherfey, General Manager
Lee County Electric Cooperative, Inc.
P. O. Box 3455
North Fort Myers, Florida 33918

Kim R. Colberg, General Manager
Linn County RECA
P. O. Box 69
Marion, Iowa 52302

Dorothy A. Postel, General Manager
Maquoketa Valley REC
P. O. Box 370
Anamosa, Iowa 52205

Kevin D. Sump, General Manager
Morgan County REMC
300 Morton Avenue
Martinsville, Indiana 46151

Lyle D. Brigle, Manager
North Western Electric Co-op, Inc.
P. O. Box 391
Bryan, Ohio 43506

William W. James, Jr.
President/General Manager
Northeastern REMC
P. O. Box 171
Columbia City, Indiana 46725

G. Thomas Upshaw, General Manager
Palmetto Electric Co-op, Inc.
P. O. Box 21239
Hilton Head, South Carolina 29925

Robert L. Roberts, General Manager
Pioneer REC, Inc.
P. O. Box 604
Piqua, Ohio 45356

William R. (Dick) Fleming, General Manager
Shenandoah Valley Electric Cooperative, Inc.
P. O. Box 8
Dayton, Virginia 22821

Charles J. Hoke, General Manager
Southern Nebraska RPPD
P. O. Box 1687
Grand Island, Nebraska 68802

James Kiley, General Manager
Sioux Valley Empire Electric Association, Inc.
P. O. Box 216
Colman, South Dakota 57017

John C. Anderson, Executive Vice President
Southside Electric Cooperative
P. O. Box 7
Crewe, Virginia 23930

Wayne Swann, General Manager & Exec. Vice-Pres
Southern Maryland Electric Cooperative, Inc.
P. O. Box 1937
Hughesville, Maryland 20637

William E. Smith, General Manager
Washington Electric Cooperative, Inc.
P. O. Box 8
East Montpelier, Vermont 05651

Larry E. Hopkey, General Manager
Southeast Iowa Cooperative Electric Assoc.
P. O. Box 440
Mt. Pleasant, Iowa 52641

Daniel L. Kessler, Jr., General Manager
Wells REC
P. O. Box 365
Wells, Nevada 89835

The strength of this organization is found in our quality membership.

As you attend reginoal/national meetings remember the REMDC when talking with those systems on the "Cutting Edge".

We must have your support and leadership in the "DECADE OF DECISION".

Noble Ray Stallons, General Manager
Utilities District of Western
Indiana REMC
P. O. Box 427
Bloomfield, Indiana 47424

TREASURER'S REPORT

THE RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL

OPERATING STATEMENT

May 10, 1989 to May 16, 1990

INCOME:	
1989 Dues (Schedule A) - 3	$ 900.00
1990 Dues (Schedule B) - 32	9,600.00
Interest from Investments	1,819.12
TOTAL INCOME	$12,319.12
EXPENSES:	
Council- General	
1989 Meeting	
Cass Co. EC	$ 1,252.39
Presentation - NRECA (Schiller & Stover)	3,174.60
Blue Ridge EMC - 1989 REMDC Proceedings	789.05
Total 1989 Meeting	$ 5,216.04
1990 Meeting	
Delaware EC - Airfare - Bacon	$ 894.00
Research Project	
(Blue Ridge Mt. EMC)	
NRECA	$ 698.67
Scott R. Herriott	5,441.78
Total	$ 6,140.45
TOTAL EXPENSES	$12,250.49
NET INCOME:	$ 68.63
	* * * * * *

THE RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL

SCHEDULE A

1989 Dues Paid After May 10, 1989		
Farmers EC	5/26/89	$ 300.00
Georgia EMC	5/26/89	300.00
Washington EC	7/31/89	300.00
Total		$ 900.00

SCHEDULE B

1990 Dues Paid as of May 16, 1990		
Adams EC	4/17/90	$ 300.00
Blue Ridge EC	4/17/90	300.00
Blue Ridge Mountain EMC	4/25/90	300.00
Brunswick EMC	4/20/90	300.00
Butler County REC	4/20/90	300.00
Caprock EC	4/25/90	300.00
Cass County EC	4/20/90	300.00
Central Area DP	4/17/90	300.00
Central Georgia EMC	4/17/90	300.00
Clark County REMC	5/03/90	300.00
Cobb EMC	4/17/90	300.00
Davidson EMC	--	--
Delaware EC	4/17/90	300.00
Farmers EC	4/20/90	300.00
Flint EMC	4/18/90	300.00
Four County EMC-NC	4/17/90	300.00
Four County EPA-MS	4/17/90	300.00
Guadalupe Valley EC	5/01/90	300.00
Hancock-Wood EC	4/17/90	300.00
Jackson EMC	4/17/90	300.00
Johnson County EC	5/01/90	300.00
Lee County EC	4/17/90	300.00
Linn County	4/17/90	300.00
Maquoketa Valley REC	4/17/90	300.00
Morgan County (IN) REMC	4/25/90	300.00
Northeastern REMC	4/17/90	300.00
Pioneer REC	4/17/90	300.00
Randolph EMC	--	--
Shenandoah Valley EC	4/17/90	300.00
Sioux Valley Empire EA	5/01/90	300.00
Southeast Iowa EA	--	--
Southern Maryland EC	5/01/90	300.00
Southside EC	4/17/90	300.00
Washington EC	4/17/90	300.00
Wells EMC	5/16/90	300.00
Total		$ 9,600.00

Grand Total (35) $10,500.00

* * * * *

THE RURAL ELECTRIC MANAGEMENT DEVELOPMENT COUNCIL

BALANCE SHEET

May 16, 1990

	5/16/90	5/10/89
ASSETS		
Current		
Cash in Checking Account	$ 6,409.06	$ 8,459.55
Investments - Savings Account	36,531.16	34,412.04
Total	$42,940.22	$42,871.59
MEMBERS' EQUITY		
Retained Earnings	$42,871.59	$32,216.45
Net Gain (Loss)	68.63	10,655.14
Total	$42,940.22	$42,871.59
	* * * * *	* * * * *

Respectfully submitted,

Allen R. Ritchie
Treasurer

SCHEDULE OF REMDC MEETING DATES AND LOCATIONS

Meeting	Date	Location
1st	May 22-23, 1958	Hotel Pickwick, Kansas City, MO
	(8 people present - Clyde Ellis participated)	
2nd	October 13, 1958	Hotel Pickwick, Kansas City, MO
3rd	March 9-10, 1959	Hotel Pickwick, Kansas City, MO
4th	October 1-2, 1959	Hotel Pickwick, Kansas City, MO
5th	May 19-21, 1960	Hotel Pickwick, Kansas City, MO
6th	May 24-26, 1961	Town House, Kansas City, KS
7th	May 1962	Kansas City, KS
8th	May 15-17, 1963	Town House, Kansas City, KS
9th	May 6-8, 1964	Town House, Kansas City, KS
10th	May 1965	Chicago, IL
11th	May 9-11, 1966	St. Louis, MO
12th	May 9-11, 1967	Fountainbleau Lodge, New Orleans, LA
13th	May 7-9, 1968	Peabody Hotel, Memphis, TN
14th	May 6-8, 1969	Antler Plaza, Colorado Springs, CO
15th	May 12-14, 1970	Bucanneer Lodge, Jekyll Island, GA
16th	May 12-15, 1971	Holiday Inn, Kimberling City, MO
17th	May 9-11, 1972	Radisson, Denver, CO
18th	May 8-10, 1973	Holiday Inn, Fargo, ND
19th	May 7-9, 1974	Landmark Inn, Myrtle Beach, SC
20th	May 20-22, 1975	Ramada Inn, Sioux Falls, SD
21st	May 11-13, 1976	Velda Rose Hotel, Hot Springs, AR
22nd	May10-12, 1977	Sheraton Airport Hotel, Denver, CO
23rd	May 22-26, 1978	Crown City, Kansas City, MO
24th	May 21-25, 1979	Quality Inn, Hilton Head, SC
25th	May 19-22, 1980	Marriott (Bloomington), Minneapolis, MN
26th	May 18-22, 1981	Hilton, Myrtle Beach, SC
27th	May 24-27, 1982	Hyatt Regency, Nashville, TN
28th	May 23-26, 1983	Harley Hotel (Earth City), St. Louis, MO
29th	May 20-24, 1984	Waverly Hotel (Smyrna), Atlanta, GA
30th	May 20-23, 1985	Marriott Inn, Clarksville, IN
31st	May 19-22, 1986	Sheraton Inn, Myrtle Beach, SC
32nd	May 18-21, 1987	Sheraton West Port Inn, St. Louis, MO
33rd	May 16-19, 1988	Holiday Inn, Columbus, MS
34th	May 15-17, 1989	Holiday Inn, Fargo, ND
35th	May 21-23, 1990	Caesars Tahoe Resort, Lake Tahoe, Nevada

Note: Two meetings each were held in the years 1958 and 1959.