INTEGRATED RESOURCE PLAN

2005

DONIPHAN ELECTRIC COOPERATIVE ASSOCIATION
KAW VALLEY ELECTRIC COOPERATIVE
NEMAHA-MARSHALL ELECTRIC COOPERATIVE ASSOCIATION

DONIPHAN ELECTRIC COOPERATIVE ASSOCIATION, INC.

P. O. BOX 699 • 101 N. MAIN, TROY, KANSAS 66087

TEL: (785) 985-3523 • (800) 699-0810

The Board of Trustees of Doniphan Electric Cooperative Assn, Inc. at their regularly scheduled Board meeting on Monday, January 30, 2006 approved the following resolution:

Resolved:

WHEREAS, Doniphan Electric Cooperative Assn., Inc., Kaw Valley Electric Cooperative, Inc., and Nemaha-Marshall Electric Cooperative, Assn., Inc. receive an allocation of hydroelectric power from Western Area Power Administration.

WHEREAS, Doniphan Electric Cooperative Assn., Inc., Kaw Valley Electric Cooperative, Inc., and Nemaha-Marshall Electric Cooperative, Assn., Inc. have developed a small customer plan for the purpose of submitting an Integrated Resource Plan.

WHEREAS, the Doniphan Electric Cooperative Assn., Inc. Board of Trustees supports the mission of the Integrated Resource Plan which is stated as the ability of the cooperative to provide adequate and reliable electric service.

WHEREAS, Doniphan Electric Cooperative Assn., Inc. Board of Trustees have reviewed the Integrated Resource Plan as submitted to Western Area Power Administration.

THEREFORE, BE IT RESOLVED, that the Board of Trustees of Doniphan Electric Cooperative Assn., Inc. give approval to the Integrated Resource Plan as submitted.

President

Attest:

Secretary

Seal

KAW VALLEY ELECTRIC COOPERATIVE, INC.

RESOLUTION

Dallas D Caster, President, and Robert E. Lynch, Secretary, Kaw Valley Electric Cooperative, Inc , do hereby certify that the following is a true copy of a certain Resolution adopted by the Board of Trustees of said Corporation at a regular or duly called meeting thereof held on the 25th day of January, 2006.

WHEREAS, Doniphan Electric Cooperative Assn., Inc., Kaw Valley Electric Cooperative, Inc., and Nemaha-Marshall Electric Cooperative, Assn., Inc. receive an allocation of hydroelectric power from Western Area Power Administration; and

WHEREAS, Doniphan electric Cooperative Assn , Inc., Kaw Valley Electric Cooperative, Inc., and Nemaha-Marshall Electric Cooperative, Assn , Inc have developed a small customer plan for the purpose of submitting an Integrated Resource Plan; and

WHEREAS, the Kaw Valley Electric Cooperative, Inc. Board of Trustees supports the mission of the Integrated Resource Plan which is stated as the ability of the cooperative to provide adequate and reliable electric service; and

WHEREAS, Kaw Valley Electric Cooperative, Inc. Board of Trustees have reviewed the Integrated Resource Plan as submitted to Western Area Power Administration

THEREFORE, BE IT RESOLVED, that the Board of Trustees of Kaw Valley Electric Cooperative, Inc. give approval to the Integrated Resource Plan as submitted

IN WITNESS WHEREOF, We have hereunto set our hands and the seal of this Corporation this 25th day of January, 2006.

Dallas D Caster

Dallas D. Caster, President

ATTEST:

Robert E Lynch

Robert E. Lynch, Secretary

The Board of Trustees of Nemaha-Marshall Cooperative Assn., Inc. at their regularly scheduled Board meeting on Wednesday, January 25, 2006 approved the following resolution:

Resolved:

WHEREAS, Doniphan Electric Cooperative Assn., Inc., Kaw Valley Electric Cooperative, Inc., and Nemaha-Marshall Electric Cooperative, Assn., Inc. receive an allocation of hydroelectric power from Western Area Power Administration.

WHEREAS, Doniphan Electric Cooperative Assn., Inc., Kaw Valley Electric Cooperative, Inc., and Nemaha-Marshall Electric Cooperative, Assn., Inc. have developed a small customer plan for the purpose of submitting an Integrated Resource Plan.

WHEREAS, the Nemaha-Marshall Electric Cooperative Assn., Inc. Board of Trustees supports the mission of the Integrated Resource Plan which is stated as the ability of the cooperative to provide adequate and reliable electric service.

WHEREAS, the Nemaha-Marshall Electric Cooperative Assn., Inc. Board of Trustees have reviewed the Integrated Resource Plan as submitted to Western Area Power Administration.

THEREFORE, BE IT RESOLVED, that the Board of Trustees of Nemaha-Marshall Electric Cooperative Assn., Inc give approval to the Integrated Resource Plan as submitted.

Robt D. Rathjens
President

Attest:

Darlene M Fuerbringer
Secretary

Seal

2005 Integrated Resource Plan

Executive Summary

The following three electric cooperatives are submitting an Integrated Resource Plan (IRP) in compliance with the Energy Policy Act of 1992 and published in the Code of Federal Regulations at 10 CFR part 905 to Western Area Power Administration:

Doniphan Electric Cooperative Association
Arlan Mitchell, General Manager
P O Box 699
Troy, Kansas 66087-0699 785-985-3523

Kaw Valley Electric Cooperative, Inc
Daniel J. O'Brien, General Manager
P O Box 750640
Topeka, Kansas 66675-0640 785-478-3444

Nemaha-Marshall Electric Cooperative Association
Kathleen Brinker, General Manager
P O Box O
Axtell, Kansas 66403-0235 785-736-2345

We are submitting the IRP under the small customer, cooperative status guidelines. The cooperatives agree to the extent possible to perform activities associated with IRP in securing future power resources. Such activities include the analysis of both supply-side and demand-side measures in order to evaluate the full range of applicable alternatives for satisfying future load requirements.

All three cooperatives, located in northeast Kansas, are non-generating electric utilities that provide retail service to end-use consumers. The cooperatives have been granted the right and utility responsibility to provide adequate and dependable service to all existing and new consumers within their state certified area. Kaw Valley and Nemaha-Marshall currently purchase wholesale power from three suppliers: Westar Energy – Topeka, Kansas, Southwestern Power Administration – Tulsa, Oklahoma, and

Western Area Power Administration – Loveland, Colorado. Doniphan currently purchases wholesale power from two suppliers: Westar Energy – Topeka, Kansas and Western Area Power Administration – Loveland, Colorado.

All three cooperatives are under the jurisdiction of the Kansas Corporation Commission in regards to certified territories and power line extension rules. Each cooperative is governed by a board of trustees. The trustees are elected to their positions by the membership of their respective cooperative. The board of trustees approves and sets the retail rates charged to their respective consumers.

System Description

Doniphan Electric Cooperative, Inc.

Doniphan Electric Cooperative is located in Troy, Kansas which is in the northeast corner of the state. The Cooperative's service area includes rural Doniphan County, the cities of Severance and White Cloud and parts of Atchison and Brown County. The Cooperative provides services to 1,650 meters and has approximately 467 miles of overhead distribution line.

The economy of Doniphan's service area is primarily agricultural. There are no large businesses in our service area. Doniphan Electric sales in 2004 were 16,369,897 kWh's. Approximately 90 percent of the sales were in rural residential and 10 percent in commercial sales. Doniphan is primarily a summer peaking system, but can reach 80 percent of summer load during the winter months. Doniphan Electric has no load control management in place.

Doniphan Electric communicates energy conservation plans by adding notes to the billing cards, advertising in the local paper and having radio announcements on peaking periods during the summer time.

System Description

Kaw Valley Electric Cooperative, Inc.

Kaw Valley is headquartered on the outskirts of Topeka, Kansas. The Cooperative's service area is located in Shawnee, Douglas, Osage, Wabaunsee, Jackson and Pottawatomie counties. The Cooperative provides retail electric service to approximately 8,800 meters. Kaw Valley operates and maintains 1,589 miles of overhead and underground distribution lines and 50 miles of 34.5 kV transmission line.

The economy of the Kaw Valley service area is primarily agricultural, although rural residential sales are significantly affected by urban migration. This is due to the close proximity of metropolitan areas such as Topeka and Lawrence. Kaw Valley has franchise agreements with the cities of Topeka, Silver Lake and Lawrence, serving consumers within the city limits of Topeka and Silver Lake. Kaw Valley also provides service to several small towns in the area, including Dover, Auburn, Big Springs, Clinton and Stull.

Kaw Valley's sales in 2004 were 128,348,226 kWh's. Approximately 78 percent of the sales were in the rural residential rate class. Approximately 19 percent of the sales were in the commercial class, large commercial at approximately 1 percent, irrigation at 0.5 percent, and public authority at 1.5 percent.

Kaw Valley has been a summer peaking system for the past ten years. Winter demand has not grown at the same rate as the summer demands.

Kaw Valley owns and operates a direct load control system, controlling 1,312 central air conditioners, 972 water heaters and 47 irrigation wells. Three commercial accounts that have standby generators also participate in this program. The standby

generator accounts let us remotely start their generators, switch the load to the generator and after the peak we turn the generator off and switch the load back to the utility system.

Actual demand reduction varies from year to year, due to temperature and weather conditions. It is estimated that under normal conditions, a demand reduction of one kW per air conditioner, 0.5 kW per water heater, approximately 1,250 kW for irrigation and 650 kW for commercial loads is achieved. Load survey meters are installed to survey various classes of consumers. This data, based on temperature and time of day, enables Kaw Valley to determine the effect of various rate classes on our system peak.

In 1998 we implemented a new load management rate for the commercial class in excess of 100 kW. This rate consists of three components: coincident peak demand charge, non-coincident peak demand charged and energy charge. This rate encourages consumers to shift loads during our summer peak time.

Kaw Valley provides energy audits for our members. In our quarterly news letter "Light Talk" we provide information regarding energy conservation practices and advice. Every year, we analyze every residential account to determine if the member is on the most economical residential rate. If our analysis indicates a better rate for the member, we contact the member to inform them that a better rate is available.

System Description

Nemaha-Marshall Electric Cooperative Assn., Inc.

Nemaha-Marshall Electric was incorporated in 1938 with headquarters located in Axtell, Kansas. Nemaha-Marshall serves approximately 3,300 meters in the counties of Nemaha, Marshall, Washington, Jackson and Pottawatomie. Our system consists of 1,572 miles of overhead and underground distribution line.

Nemaha-Marshall serves the rural area of these counties as well as the small towns of Baileyville, St. Benedict, Lanham, Hollenberg, Woodlawn, and Lillis.

The cooperative sales in 2004 were 41,202,413 kWh with 83% in the residential rate class. Commercial sales were nearly 17% with a very small percentage derived from irrigation sales.

Effective July 1, 2005, Nemaha-Marshall entered into a sale for resale arrangement with the City of Axtell. We anticipate this additional load will add about 3,000,000 kWh's to our sales figures without adversely affecting our peak as Axtell typically peaks at a different time.

With the exception of 1996 and 1997, Nemaha-Marshall has peaked in the summer. Our projections show that we will continue to peak in the summer.

New residential services are provided with information for ground source heat pumps with emphasis on the savings potential and estimated payback period.

Beginning with the 2006 Nemaha-Marshall Annual Meeting, members will have access to Energy Star information. Brochures will be available at the meeting and continued education will occur throughout the year as consumers have questions regarding appliance usages.

As a supporter of renewable energy, Nemaha-Marshall has implemented a cogeneration tariff and has prepared an interconnection agreement for anyone who wishes to produce a renewable product. As of now, we do not have anyone utilizing this tariff for power production.

Load Forecast

The cooperative systems are relatively small compared to other systems where econometric modeling is successfully used. Many unique events occur on a small system that do not correlate well with the traditional econometric independent variables such as interest rates, income or general economic activity. A couple examples of these events are the addition of a new subdivision or the development of a new industry in the cooperative's service area. When these changes are expressed as a percentage of system sales or demand, they are quite large events. This relatively small consumer base can lead to large variations in the yearly growth pattern. For this reason, it is necessary to use discretion in viewing results.

The energy projections contained in the report are based on a combination of econometric models and staff judgment.

The results of the load forecast show that energy sales are expected to increase at an average rate of 2.2 percent per year over the next ten years, while summer coincident peak demand (CP) is expected to increase at a rate of 3.2 percent.

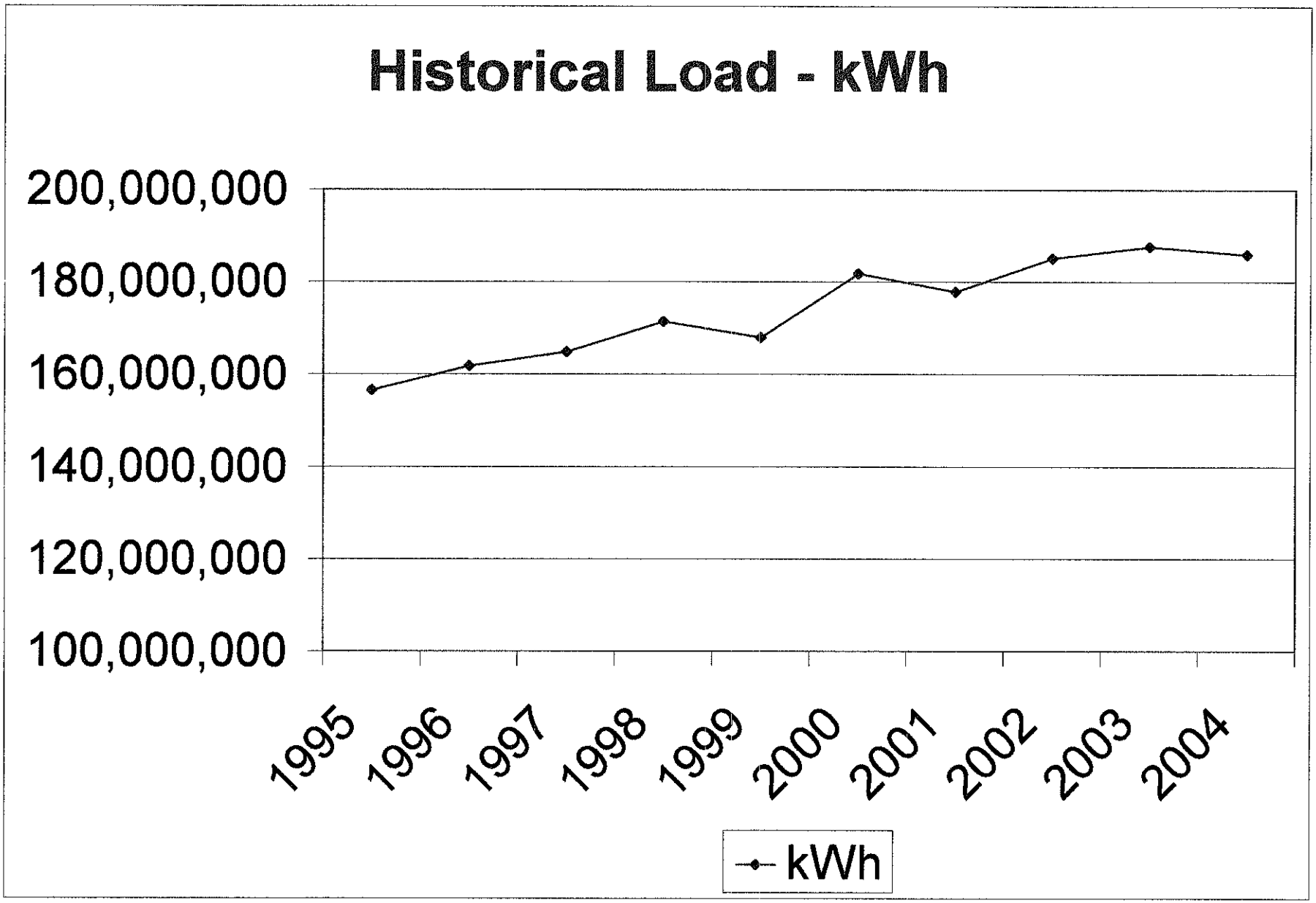
This forecast represents a realistic assessment of the energy sales and power needs of the cooperatives for the next ten years. However, many unforeseen factors may affect future power sales. Interest rates, the loss or addition of a large commercial customer and many other factors could have an impact on future energy sales. The cooperatives will continue to work to meet the challenges of the future and to provide their consumers with reliable and reasonably priced power.

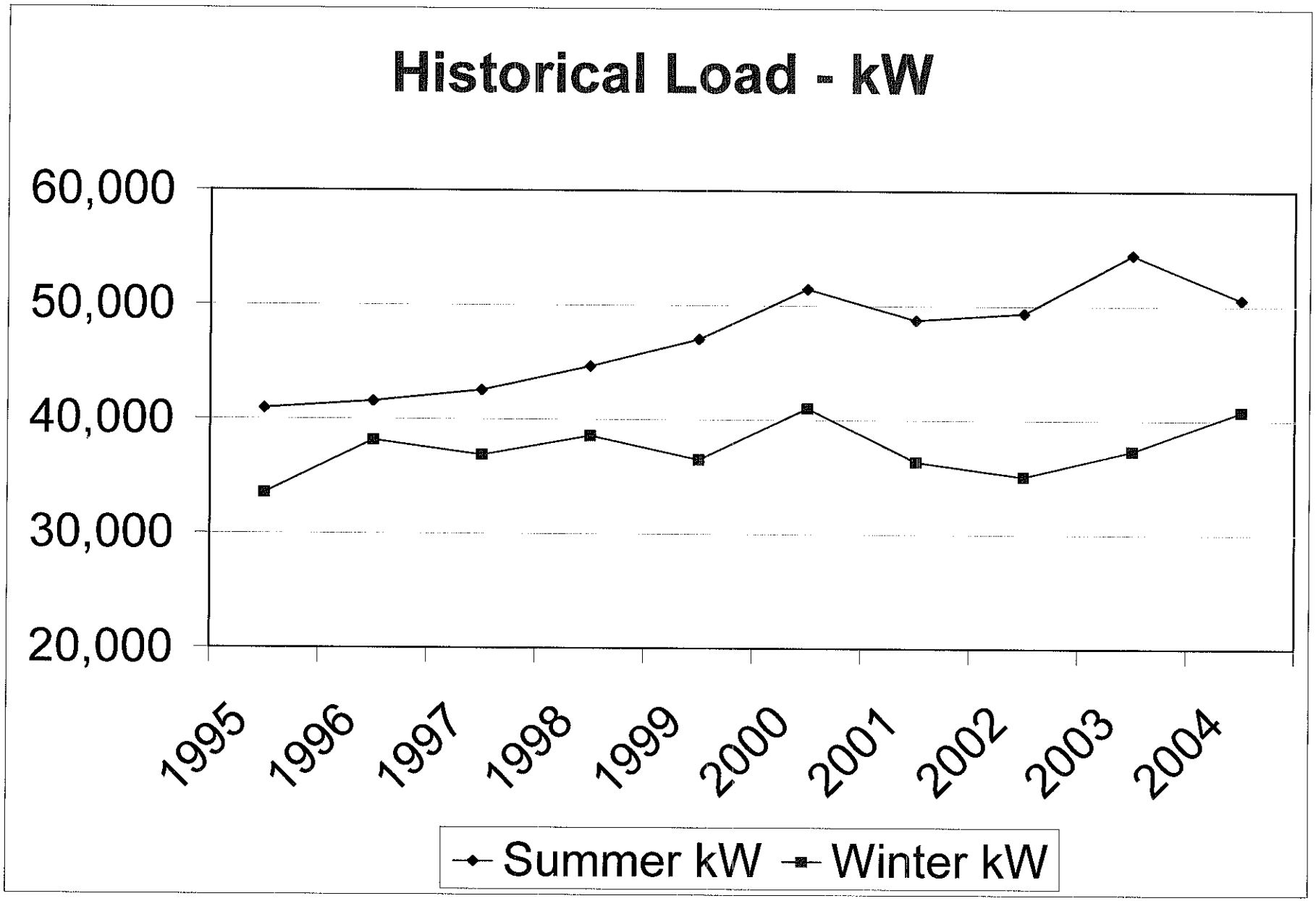
HISTORICAL ENERGY SALES

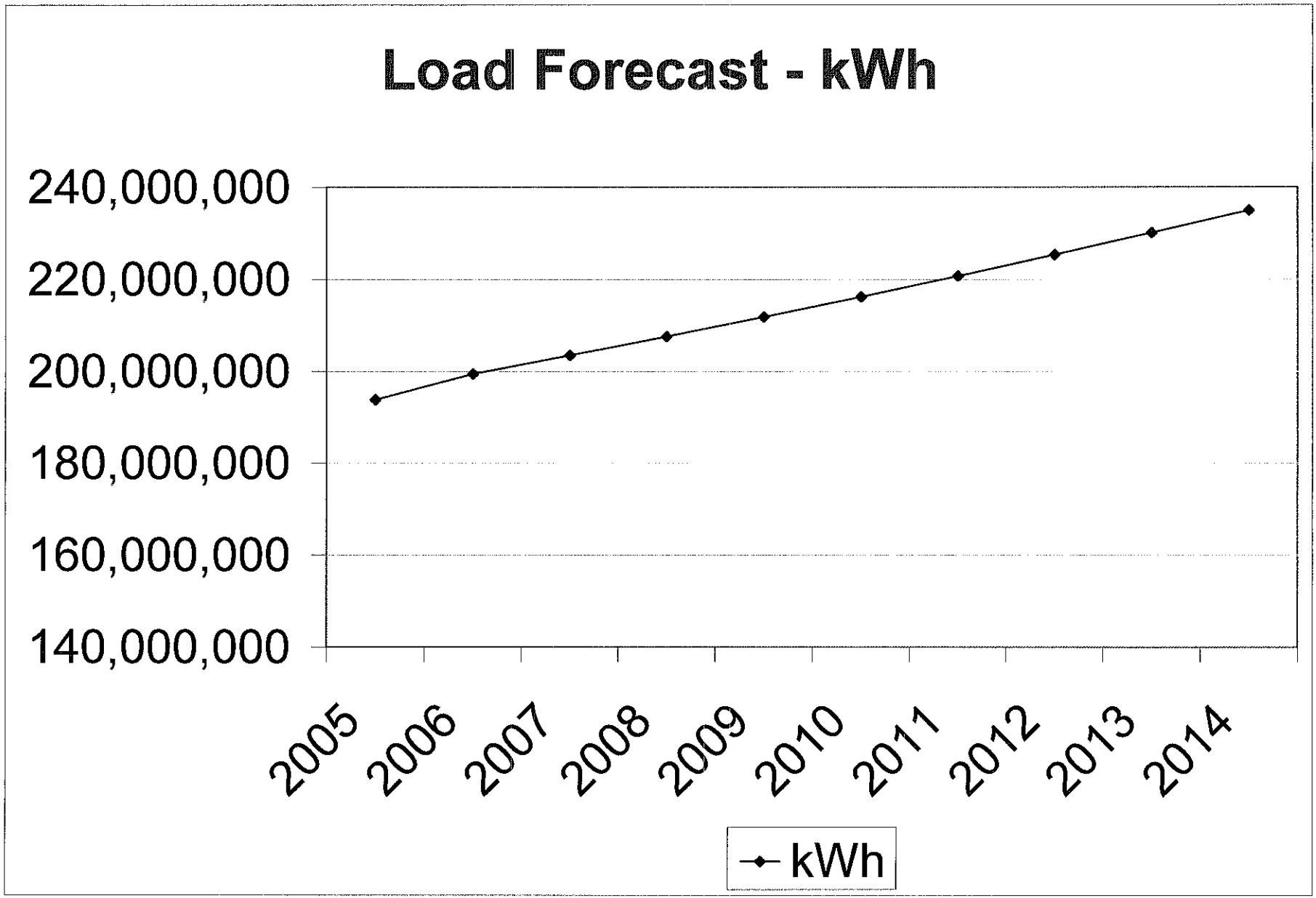
	Rural Residential kWh	Irrigation kWh	Commerical kWh	Large Commerical kWh	Sale For Resale kWh	Total kWh	Summer CP kW	Winter CP kW
1995	123,255,050	404,129	31,919,833	959,465	0	156,538,477	40,925	33,537
1996	128,205,164	434,209	32,261,222	947,100	0	161,847,695	41,558	38,147
1997	130,092,479	548,502	33,230,093	979,240	0	164,850,314	42,519	36,870
1998	136,010,343	246,210	34,215,796	970,200	0	171,442,549	44,636	38,554
1999	132,697,930	480,819	33,715,573	1,068,300	0	167,962,622	47,018	36,495
2000	144,893,420	455,074	35,424,012	1,062,300	0	181,834,806	51,440	41,009
2001	141,569,051	422,407	34,789,068	1,084,800	0	177,865,326	48,746	36,342
2002	148,775,322	723,068	34,592,035	1,102,500	0	185,192,925	49,344	35,069
2003	150,281,207	737,629	35,423,896	1,265,090	0	187,707,822	54,453	37,320
2004	149,059,585	145,482	35,566,872	1,148,700	0	185,920,639	50,533	40,762

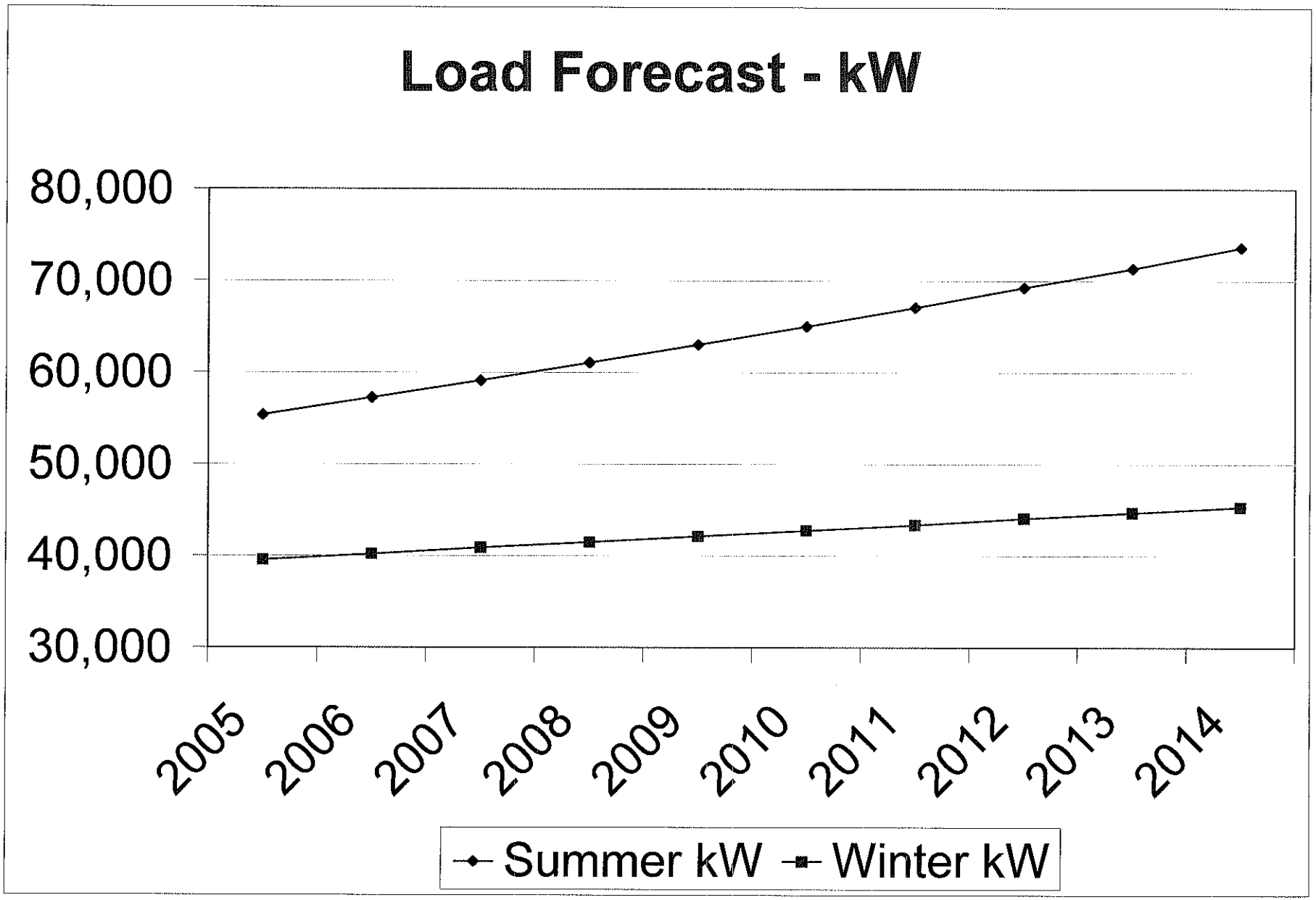
PROJECTED ENERGY SALES

2005	154,033,322	586,200	36,733,998	1,200,000	1,250,000	193,803,520	55,356	39,552
2006	157,634,093	586,200	37,039,708	1,200,000	3,000,000	199,460,001	57,229	40,168
2007	161,341,618	586,200	37,349,314	1,200,000	3,000,000	203,477,132	59,102	40,885
2008	165,159,094	586,200	37,663,842	1,200,000	3,000,000	207,609,136	61,074	41,502
2009	169,089,818	586,200	37,977,324	1,200,000	3,000,000	211,853,342	63,047	42,119
2010	173,137,177	586,200	38,294,786	1,200,000	3,000,000	216,218,163	65,020	42,736
2011	177,304,670	586,200	38,616,256	1,200,000	3,000,000	220,707,126	67,093	43,353
2012	181,595,893	586,200	38,940,767	1,200,000	3,000,000	225,322,860	69,266	44,069
2013	186,014,553	586,200	39,267,345	1,200,000	3,000,000	230,068,098	71,338	44,686
2014	190,564,468	586,200	39,598,021	1,200,000	3,000,000	234,948,689	73,611	45,303


Historical Load - kWh
200,000,000
180,000,000
160,000,000
140,000,000
120,000,000
100,000,000
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
kWh


Historical Load - kW
60,000
50,000
40,000
30,000
20,000
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
Summer kW
Winter kW


Load Forecast - kWh
240,000,000
220,000,000
200,000,000
180,000,000
160,000,000
140,000,000
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
kWh


Load Forecast - kW
80,000
70,000
60,000
50,000
40,000
30,000
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Summer kW
Winter kW

Current Power Supply Resources

The cooperative's current power suppliers are Westar Energy, Southwestern Power Administration and Western Area Power Administration.

Westar Energy is the cooperative's largest wholesale power supplier in terms of energy delivered. The cooperatives have a full power requirement contract with Westar that expires May 31, 2008. Through negotiations with Westar, the full power requirement contract was amended over the years to allow the cooperatives to receive hydropower from the federal power marketing agencies. Westar's fuel mix for their generating facilities is as follows:

Nuclear	9%
Gas/Oil	34%
Coal	57%

In 2004, Westar delivered the following energy (kWh) to the cooperatives:

Doniphan	17,795,781
Kaw Valley	134,272,194
Nemaha-Marshall	41,619,364
Total kWh	193,687,339

Total Westar energy delivered represents 96.15 percent of the cooperatives annual power requirements.

Kaw Valley and Nemaha-Marshall have wholesale contracts for hydropower with the federal power marketing agency of the Southwestern Power Administration (SWPA). Kaw Valley's contract expires May 31, 2018 and Nemaha-Marshall's contract expires May 31, 2012. Both contracts are for 1,000 kW and associated energy. Energy delivered

varies from year to year, based on the water situation at the various generating sources. In 2004, SWPA delivered the following energy to the cooperatives:

Kaw Valley	2,861,812
Nemaha-Marshall	2,891,305
Total kWh	5,753,117

Total SWPA energy delivered represents 2.86 percent of the cooperatives annual power requirements.

All three cooperatives entered in a wholesale hydropower contract with the federal power marketing agency of the Western Area Power Administration (WAPA). All three contracts expire on September 30, 2024. These contracts are for capacity and energy. In 2004, WAPA delivered the following energy to the cooperatives:

Doniphan	201,219
Kaw Valley	1,285,911
Nemaha-Marshall	508,931
Total	1,996,061

Total WAPA energy delivered represents 0.99 percent of the cooperatives annual power requirements. The cooperatives started receiving the hydropower in October, 2004, thus the above noted energy deliveries do not represent a full year. To normalize for a full year, WAPA would deliver the following energy to the cooperatives:

Doniphan	845,437
Kaw Valley	5,747,074
Nemaha-Marshall	2,102,966
Total kWh	8,695,477

The normalized WAPA energy delivered represents 4.32 percent of the cooperatives annual power requirements. Westar's energy delivery would be reduced by the normalized increase in the WAPA delivery.

Future Power Supply Resources

The main concern of the cooperatives is to replace the full power requirement contract with Westar Energy that expires May 31, 2008. The cooperatives will be investigating several options available to them over the next couple of years. These options include entering into another contract with Westar, joining with a generation and transmission cooperative, construct generating facilities or partial ownership of a generating facility, and contract with another power supplier. The cooperatives will explore the feasibility and economics of the options available.

The hydropower contracts with WAPA and SWPA expire outside the scope of this IRP, thus no action needs to be taken.

Service Reliability Improvements

Service reliability is one of the most important measures of the quality of service to consumers. The general public has grown accustomed to expecting nearly uninterrupted service. Numerous or extended power outages have a serious detrimental effect on public relations and consumer confidence in the performance of the cooperatives. Complying with the increasing demand for greater service continuity requires diligence in performing daily operation and maintenance activities, routine inspection of main feeder lines, careful attention to system planning and a properly designed and maintained protective coordination scheme.

Listed below are a number of activities that the Cooperatives perform, but not all inclusive, that enhance service reliability:

a) Line Clearance – consists of spraying, trimming and removal.

b) OCR Maintenance – 25% of the OCR's are annually inspected.

c) Substation Inspections – substations are inspected monthly. On an annual basis, the oil and gases are tested. Nemaha-Marshall and Doniphan perform infrared testing.

d) Pole Change Out – replace over 900 poles per year due to age and deterioration

e) Pole Testing – this activity is performed by contractors and cooperative employees.

f) Conductor Upgrade – over 40 miles of primary conductor per year are upgraded through the use of contractors and cooperative employees.

g) Overhead Transformer Installations – install wildlife protective equipment.

h) Sectionalizing Studies – are performed when loads or system characteristics change.

Environmental Impacts

The cooperatives purchase all of their power requirements through outside suppliers The environmental impacts on the generating facilities are beyond the control of the cooperatives If there is a power supply issue that has an impact on environmental concerns, it is our belief the federal, state and the local public process will foster a solution.

Demand Side Management

The cooperatives, through member newsletters, educate their members on energy efficient issues. These newsletters stress the importance of the wise, safe and efficient use of electricity.

Rate incentives are designed to give the appropriate price signal to control peak demands.

Action Plan

Three Year Action Plan

A) Evaluate power supply proposals and enter into agreements with transmission suppliers and power suppliers to replace the power supply contract that expires May 31, 2008

B) Continue to develop consumer programs to inform consumers about energy efficiencies.

Five Year Action Plan

A) Continue to investigate and monitor power supply issues and determine appropriate options available

B) Continue to forecast future energy sales in order to project future energy needs.

C) Monitor and investigate the potential of renewable wind energy projects in the state of Kansas.

D) Continue to develop and implement incentive retail rates that encourage off-peak usage.

2005 Integrated Resource Plan

Conclusion

The energy market has changed drastically in the past few years. As this market evolves, the cooperatives must remain flexible in their approach to future power supply Maintaining a balance of coal, nuclear, gas, hydropower and renewable generation (through contracts) is important in order to provide the cooperatives with a continued reliable, economic supply of wholesale electricity.