

ORIGINAL

OPEN MEETING

MEMORANDUM
RECEIVED



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Arizona Corporation Commission

DOCKETED

DEC 19 2008

TO: THE COMMISSION

7008 DEC 19 A 10: 29

FROM: Utilities Division

AZ CORP COMMISSION
DOCKET CONTROL

DATE: December 19, 2008

DOCKETED BY

RE: GARKANE ENERGY COOPERATIVE, INC. AND DIXIE-ESCALANTE RURAL ELECTRIC ASSOCIATION, INC. - JOINT APPLICATION FOR A WAIVER OF THE REQUIREMENT OF DECISION NO. 69736 FOR IMPLEMENTATION OF TIME-BASED RATE SCHEDULES (DOCKET NOS. E-01891A-08-0061 AND E-02044A-08-0061)

Garkane Energy Cooperative, Inc. ("Garkane") and Dixie-Escalante Rural Electric Association, Inc. ("Dixie-Escalante") are member-owned, Utah-based non-profit cooperative associations that supply electricity to their members - most of which are located in the state of Utah. On February 1, 2008, Garkane and Dixie-Escalante filed a Joint Application ("Application") with the Arizona Corporation Commission ("Commission" or "ACC") requesting a waiver of the Decision No. 69736 ("Decision") requirement to implement time-based rate schedules. On July 23, 2008, Garkane and Dixie-Escalante requested that the item be pulled from the July 29-30, 2008 Open Meeting Agenda. The reason for the request was to allow the applicant time to develop additional data on meter costs, which they believed would further support their request for a waiver.

The following excerpt from subparagraph (A) of the Public Utility Regulatory Policies Act of 1978 ("PURPA") Time-Based Metering and Communications standard, as modified by the ACC in Decision No. 69736 (p. 7, lines 6-9), contains the requirement from which Garkane and Dixie-Escalante ("Cooperatives") are seeking waivers¹:

"(A) Within 18 months of Commission adoption of this standard, each electric distribution utility shall offer to appropriate customer classes, and provide individual customers upon customer request, a time-based rate schedule under which the rate charged by the electric utility varies during different time periods and reflects the variance, if any, in the utility's costs of generating and purchasing electricity at the wholesale level."

Decision No. 69736 requires each electric distribution utility under ACC jurisdiction to offer time-based rate schedules to appropriate customer classes and individual customers upon request. With the Commission's July 30, 2007, adoption of this modified Time-Based Metering and Communications standard, Staff concludes that all electric distribution utilities under ACC

¹ It should be noted at p. 7 of Decision No. 69736 (lines 14-28) and p. 8 (lines 1-2) that the time-based rate schedule referred to in Subparagraph (A) may include, but is not limited to, time-of-use pricing, critical peak pricing, real-time pricing or credits for load reduction agreements.

jurisdiction are required to offer Commission-approved, time-based rate schedules to appropriate customer classes no later than January 31, 2009.

Both Cooperatives are all-requirements members of the Deseret Generation and Transmission Cooperative ("Deseret") and, as such, are obligated by contract to take all of their power and energy at wholesale from Deseret. Garkane and Dixie-Escalante are billed demand charges based upon each cooperative's load measured at the time of Deseret's Coincident System Peak. There is no time of day or month of year differentiation in the wholesale rates charged to the Cooperatives for capacity or energy purchased from Deseret.

According to the Application, the reasons for requesting waivers are that the Cooperatives are not being required to implement time-based rates in Utah where the considerable majority of their customers are located; time-based rates are not cost-effective for their customers or the Cooperatives primarily because the Cooperatives' rates are not time-differentiated at the wholesale level; and metering costs associated with implementation of time-differentiated rates are relatively high (p. 2 of the Application, lines 17-21). Responses to Staff-initiated data requests and follow-up conversations with vendors indicate that the Cooperatives may require a somewhat unique time-of-use ("TOU") meter to integrate with their existing Automatic Meter Reading ("AMR") systems, the TS1 Hunt technologies Turtle System. Staff issued several data requests and contacted suppliers to develop a better understanding of the Cooperatives' metering and meter infrastructures. Staff's findings are as follows:

- The existing infrastructures include the Hunt Technologies' Standard Turtle TS1 transmitter and FOCUS meters that contain modular AMR technologies.
- The existing systems were put into service approximately 10 years ago, and at that time, were considered to be an advanced technology compared to the then existing electro-mechanical meters that must be manually read each month. Under the TS1 system, meter readings can be obtained electronically on a daily basis and transported over power lines for integration into the Cooperatives' monthly billing systems. The AMR feature was an important upgrade for the Cooperatives in that it practically eliminated the need to dispatch meter reading personnel to far northern Arizona locations to obtain meter reads each month.
- The existing FOCUS meters are capable of sending billable energy (kWh) and demand (kW) metered data to the Cooperatives over existing power lines, but not in a TOU format.
- As is discussed in more detail below, Landis+Gyr Energy Management Systems ("L+G") is the meter supplier for the Cooperatives, and L+G's AXS4e poly-phase meter is the only meter they carry that can be integrated into the TS1 Turtle system and provide billable AMR/TOU data. As recently as December 1, 2008, Hunt Technologies (now L+G) verified that their S4e meter is the only meter they carry that can provide meter

data in a TOU format, but as discussed below, it is not a cost-effective meter for residential applications.

Staff and the Cooperatives were unable to mutually agree on the best approach to identify TOU-related incremental costs and the proper recovery of those costs. Staff's approach considered data and information received from the Cooperatives and their suppliers, and Itron, Inc. ("Itron"). Staff concluded that Garkane and Dixie-Escalante would likely incur costs in excess of \$100,000 to upgrade their respective systems (\$75,000 to upgrade AMR systems, plus \$25,000 to upgrade billing systems). The upgrades would entail replacing the existing TS1, AMR one-way signal system with the TS2, AMR/TOU two-way signal system; plus, upgrading existing billing systems to accommodate TOU billings. Under TS2 systems, there would also be an additional average cost per meter in the amount of approximately \$65. A contrasting option would also be expensive. If the existing TS1 systems are retained, the Cooperatives could replace existing AMR meters with L+G AXS4e poly-phase meters at an incremental installed cost of approximately \$511 per meter (Attachment 1), plus \$25,000 to upgrade the existing billing systems. It is important to note that AXS4e poly-phase meters are over designed for residential applications in that they are designed to accommodate complex commercial/industrial metering applications, including 3-phase metering, which makes them more costly compared to basic residential TOU meters. Staff also contacted Itron regarding residential TOU meters and the feasibility of integrating their product with the TS1 Turtle system. Although Itron is not permitted to quote costs on TS1 systems, they believe that their Centron meters costing approximately \$100 each could be integrated with TS1 systems to provide residential AMR/TOU readings.

Garkane and Dixie-Escalante believe that it would be difficult to design effective retail TOU rates given that Deseret's rates are not time-differentiated at the wholesale level (Application, p. 3, lines 3-5). Staff agrees that it is difficult to develop effective TOU rates that properly recover costs and contain price signals that encourage shifting consumption off the hours normally experienced by Deseret as on-peak. Given that TOU-related implementation costs are estimated to be substantial as discussed above, Staff is willing to work with the Cooperatives to identify a plan of compliance to Decision No. 69736 as is discussed in its recommendations and findings.

The Application is supported by operating data for the twelve months ended January 2008. Garkane reported having approximately 11,350 customers of which only about 690 (6.1 percent) are located in Arizona. Dixie-Escalante reported having nearly 13,650 customers of which only about 2,100 (15.4 percent) are located in Arizona. Staff believes that the findings discussed above and statistics shown below, and a Utah Public Service Commission ("Utah Commission") decision to not mandate time-based rates for the Cooperatives' customers located in Utah (Decision No. 06-999-03, issued February 14, 2007), may have influenced the Cooperatives in reaching their conclusion that implementing time-based rates would not be cost-effective for their Arizona customers or the Cooperatives (Application, p.2, lines 18-19).

	Garkane				Dixie-Escalante		
	Utah	Arizona	Arizona %		Utah	Arizona	Arizona %
Annual MWH	170,494.1	14,603.9	7.89%		321,215.8	31,311.3	8.88%
Peak Summer KW CP*	28,310	2,742	8.83%		85,000	7,482	8.09%
Peak Winter KW CP*	41,539	3,146	7.04%		55,994	6,263	10.06%
Total No. of Customers	10,667	690	6.08%		11,545	2,097	15.37%
Rev \$ x 000	\$12,776.8	\$1,197.6	8.57%		\$17,112.0	\$1,915.6	10.07%

*Utah and Arizona split is estimated based on MWH (summer = May-October; winter = November-April)

Staff believes that it is incorrect to conclude that non-differentiated rates at the wholesale level and “high metering costs” (Application, p. 2, lines 19-21) automatically preclude conducting detailed empirical analyses to determine the feasibility of implementing time-based rates. For example, even at an installed meter differential of \$511, Garkane and Dixie-Escalante would only have to increase their existing monthly customer charges approximately \$4.15 (Attachment 1). Staff estimates that existing customer charges would increase to approximately \$16.65 and \$12.55 for Garkane and Dixie-Escalante, respectively. The increase could cover the annual incremental carrying cost of the S4e meter if it were used for residential TOU purposes. Under such a scenario, Staff estimates that each residential customer who signs-up for residential TOU rates could save the Cooperatives an average of approximately \$45 per year through reduced demand billings from Deseret (see Attachments 2 and 3 and Item B under further support for recommendations for details).

Subparagraph (A) of the modified Time-Based Metering and Communications standard also contains the following requirement (p. 7, lines 9-12): “Within 18 months of Commission adoption of this standard, each electric distribution utility shall investigate the feasibility and cost-effectiveness of implementing advanced metering infrastructure for its service territory and shall begin implementing the technology if feasible and cost effective.” According to page 2 (lines 22-23) and page 3 (lines 1-3) of the Application, the Cooperatives plan to study “smart metering” as required by the Commission’s order. Staff believes that the Cooperatives’ findings and conclusions regarding advanced metering infrastructures will be documented with the Commission no later than January 31, 2009.

Staff’s Recommendations and Findings

Staff recommends a temporary waiver of the requirement to implement optional time-based rates. Staff further recommends that the temporary waiver expire January 31, 2010.

Staff further recommends that no later than January 31, 2009, Garkane and Dixie-Escalante meet the requirements of Decision No. 69736 to investigate the feasibility of implementing an advanced metering infrastructure. If their investigations on advanced metering infrastructures indicate that such infrastructures would not be appropriate, feasible, and cost-effective, within three months of the Commission’s decision in this docket the Cooperatives shall provide Staff with copies of the detailed empirical data that clearly identify the economic and societal costs and benefits that support their respective decisions.

Staff further recommends that within six months of the Commission's decision in this docket, the Cooperatives be required to provide Staff with copies of detailed quotes, analyses, findings and recommendations that support the Cooperatives' conclusions regarding the feasibility of offering time-based rate schedules. Staff requests that the Cooperatives' support include at least three meter quotes from three different suppliers, and at least one supplier quote to upgrade the existing TS1 and billing systems to accommodate appropriate AMR/TOU meters. Staff is willing to assist the Cooperatives in developing their respective final reports.

In the event the Cooperatives conclude that it is appropriate to offer time-based rates to their residential customer class, Staff recommends that within nine months of the Commission's decision in this docket, the Cooperatives provide Staff with draft copies of proposed rate schedules including detailed data that support time-based rate schedules proposed by the Cooperatives.

In the event the Cooperatives do not file proposed TOU rate schedules that are voluntary rate options for any of their respective Arizona rate classes, Staff further recommends that within 12 months of the Commission's decision in this docket the Cooperatives be required to provide Staff with detailed empirical data that clearly identify the economic and societal costs and benefits that support their respective decisions.

Staff further supports its recommendations with the findings that follow:

- A. Approximately 80 percent of Garkane's and Dixie-Escalante's Arizona customers are residential class customers. Staff believes that given reasonable incremental TOU-related costs, the residential class would be a viable rate class to target for TOU metering due to its TOU-related load shifting opportunities and potential impact on demand billings at the wholesale level.

A case in point is Sulphur Springs Valley Electric Cooperative ("SSVEC"). Although SSVEC has substantially more Arizona customers than Garkane and Dixie-Escalante, all three cooperatives' residential classes represent approximately 80 percent of their respective total customer numbers. When SSVEC's residential TOU rates were implemented in 1995, SSVEC's billing arrangements were similar to the circumstances now facing Garkane and Dixie-Escalante in that SSVEC was an all-requirements member of Arizona Electric Power Cooperative, Inc. ("AEPSCO"); SSVEC was billed for demand coincident with AEPSCO's monthly peak for that member class; and demand rates were not time-differentiated at the wholesale level, as is the case for the Cooperatives.

The reason Staff cites SSVEC is that SSVEC's February 2008 report on the participation (which is extremely modest) and benefits of TOU rates states that implementing TOU options has saved SSVEC approximately \$315,000 in avoided annual demand charges. The following quotes from page 3 of the report encapsulate SSVEC's support of TOU rates: a) "SSVEC would like to continue using the TOU

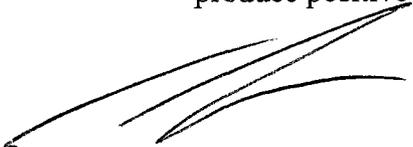
rates as they provide an economic benefit to the Co-op and give the members a choice in how to purchase their energy with the potential for savings by modifying their consumption habits by shifting their load to the “off-peak” periods.” and b) “Because SSVEC is member owned and we want to act in the best interest of the members, it is our intent to notify those members who didn’t save money by using the TOU rates that they either need to move more loads to the “non-peak” periods or consider going back to the non TOU rates”

These findings encouraged Staff to not recommend a permanent waiver. Staff believes that TOU-related technologies will continue to evolve and expects these developments to lower TOU-related infrastructure costs. As advanced metering infrastructure technologies continue to evolve and the costs of adopting these technologies drop lower, Staff believes that costs may reach levels that further encourage electric distribution utilities and their customers to participate in, for example, TOU-related options. It is also noteworthy to mention that in 2008 SSVEC selected the L+G TS2 two-way advanced metering system for its members.

- B. Staff’s approach in determining the feasibility of the Cooperatives’ implementation of TOU rates in Arizona includes some rate design and a benefit analysis. Staff assumed that if signing up one residential customer to use TOU rates reduced annual demand billings from Deseret by approximately \$50 (the annual incremental carrying costs of installing TOU meters – see Attachment 1), then it would be appropriate to recommend that Garkane and Dixie-Escalante be required to undertake more comprehensive cost-benefit analyses. Using respective residential rate classes’ sales data, Staff developed Attachment 2 to create a base case scenario that identifies Arizona’s residential share of total billed kW for the period February 2007 through January 2008 (Column 4). Attachment 3 was developed to establish a hypothetical 10 percent penetration with a 25 percent load shift. Attachment 3 indicates that the Cooperatives could hypothetically save an average of approximately \$45 per customer, per year, for each residential customer that signed-up for TOU rates. These results were close enough to Staff’s \$50 target to warrant requiring the Applicants to provide additional support for their waiver request.
- C. Staff’s recommendations are reinforced by the Utah Commission’s decision issued February 14, 2007 (Docket No. 06-999-03). The decision determined that it was not appropriate to adopt the Federal time-based metering and communications standard as written. Staff believes that the decision supports Staff’s position because TOU rates already existed in Utah at the time of the Utah Commission’s ruling, and the ruling does not condemn time-based metering. The Utah Commission was concerned with smart metering-related costs and benefits, and ordered Rocky Mountain Power² to support its conclusion that smart metering, as

² Rocky Mountain Power is the only PURPA-covered utility over which the Utah Commission has ratemaking authority.

envisioned by the PURPA standard, is not cost-effective for its applicable circumstances. Staff believes that the Utah Commission ruling has relevance in this proceeding because Garkane and Dixie-Escalante did not provide empirical data sufficient to convince Staff to support their request for a permanent waiver from the Commission's Decision. Staff continues to believe that the Commission's requirement to implement time-based rates is appropriate, provides potential operating benefits for electric distribution utilities, and provides the opportunity to produce positive benefits for retail rate payers.



Ernest G. Johnson
Director
Utilities Division

EGJ:WHM:lhm\CHH

ORIGINATOR: William H. Musgrove

GARKANE ENERGY AND DIXIE-ESCALANTE
(Docket Nos. E-01891A-08-0061 and E-02044A-08-0061)

Reported Meter and Installation-Related Costs

	<u>Per Meter</u>				<u>Annual CC Rate</u>		<u>Annualized Cost</u>	<u>Monthly Cost</u>
	<u>TOU</u>	<u>Non-TOU</u>	<u>Delta</u>					
Meter	\$ 378	\$ 89	\$ 289					
S&H	\$ 76	\$ 18	\$ 58					
SubTotal	\$ 454	\$ 107	\$ 347	@	9.74%	=	\$ 34	\$ 2.82
Installation	\$ 127	\$ 20	\$ 107	@	9.74%	=	\$ 10	\$ 0.87
Travel	\$ 60	\$ 3	\$ 57	@	9.74%	=	\$ 6	\$ 0.46
Subtotal	\$ 187	\$ 23	\$ 164				\$ 16	\$ 1.33
Total Incremental Meter-Related Costs	\$ 641	\$ 130	\$ 511	@	9.74%	=	\$ 50	\$ 4.15

Staff's Residential TOU Analysis - Base Case
(DOCKET NOS. E-01891A-08-0061 AND E-02044A-08-0061)

Dixie @ 0% Penetration (1,697 Customers)

	Total KWH Sold in AZ	Res KWH Sold in AZ	Res % of Total AZ	(2) Total CP Billed KW	(3) AZ % of Total Sys	(4)=(1)x(2)x(3) AZ Res Share of Total KW	(5) Avg No Res Cus	(6)=(4)/(5) Avg KW Per Cust	(7) Est Wgt Avg Cost Per KW	(8)=(4)x(7) Est Value To Dixie	(9)=(8)/(5) Dixie's Value Per Cust
Feb-07	2324597	1575176	67.8%	52,298	8.40%	3332	1697	1.96	\$6.091	\$20,292	\$12
Mar-07	2132737	1340222	62.8%	48,158	10.21%	3155	1697	1.86	\$6.091	\$19,218	\$11
Apr-07	1851399	1100077	59.4%	55,950	9.74%	3238	1697	1.91	\$6.091	\$19,720	\$12
May-07	2262256	1446632	63.9%	67,526	8.00%	3455	1697	2.04	\$6.091	\$21,046	\$12
Jun-07	2843291	1862728	65.5%	86,063	8.36%	4714	1697	2.76	\$6.091	\$28,713	\$17
Jul-07	3743354	2661182	71.1%	92,482	8.53%	5606	1697	3.30	\$6.091	\$34,148	\$20
Aug-07	3369337	2335484	69.3%	92,010	7.77%	4954	1697	2.92	\$6.091	\$30,178	\$18
Sep-07	2994370	2099013	70.1%	88,953	7.17%	4473	1697	2.64	\$6.091	\$27,248	\$16
Oct-07	1876448	1147077	61.1%	35,981	9.45%	2077	1697	1.22	\$6.091	\$12,650	\$7
Nov-07	1799624	1071220	59.5%	52,723	7.52%	2359	1697	1.39	\$6.091	\$14,369	\$8
Dec-07	2983864	2187261	72.6%	53,149	12.42%	4795	1697	2.83	\$6.091	\$28,207	\$17
Jan-08	3130031	2244942	71.7%	62,257	10.87%	4854	1697	2.86	\$6.091	\$29,564	\$17
Sum	31,311,308	21,050,994	66.25%					2.31		\$286,353	\$169
Average											

Garkane @ 0% Penetration (543 Customers)

	Total KWH Sold in AZ	Res KWH Sold in AZ	Res % of Total AZ	(2) Total CP Billed KW	(3) AZ % of Total Sys	(4)=(1)x(2)x(3) AZ Res Share of Total KW	(5) Avg No Res Cus	(6)=(4)/(5) Avg KW Per Cust	(7) Est Avg Cost Per KW	(8)=(4)x(7) Est Value To Garkane	(9)=(8)/(5) Gark's Value Per Cust
Feb-07	1191087	772787	64.9%	38,137	6.68%	1652	543	3.04	6.518	\$10,768	\$20
Mar-07	1024041	653227	63.8%	35,609	7.22%	1641	543	3.02	6.518	\$10,694	\$20
Apr-07	9233378	488579	52.7%	21,657	6.63%	757	543	1.39	6.518	\$4,934	\$9
May-07	1150674	475602	41.3%	23,453	8.53%	827	543	1.52	6.518	\$5,389	\$10
Jun-07	1237945	524374	42.4%	28,469	8.25%	995	543	1.83	6.518	\$6,455	\$12
Jul-07	1378444	623691	45.2%	31,052	8.72%	1225	543	2.26	6.518	\$7,963	\$15
Aug-07	1399641	680592	48.6%	29,819	9.34%	1354	543	2.49	6.518	\$8,824	\$16
Sep-07	1523082	684726	45.0%	25,951	9.91%	1156	543	2.13	6.518	\$7,532	\$14
Oct-07	1066060	425784	39.9%	31,185	8.11%	1011	543	1.86	6.518	\$6,567	\$12
Nov-07	1021217	529858	51.9%	33,838	7.19%	1282	543	2.32	6.518	\$8,228	\$15
Dec-07	1142527	667757	58.4%	42,058	7.10%	1746	543	3.22	6.518	\$11,381	\$21
Jan-08	1545817	946171	61.2%	44,685	7.34%	2008	543	3.70	6.518	\$13,086	\$24
Sum	14,603,914	7,471,158	51.28%					2.40		\$101,892	\$188
Average											

Staff's Estimate of Residential TOU Conversion Benefits
(DOCKET NOS. E-01891A-08-0061 AND E-02044A-08-0061)

Dixie @ 10% Penetration (170 Customers) & 25% kWh shift

	(1) Res % of Total AZ	(2) Total CP Billed KW	(3) AZ % of Total Sys	(4)=Base Case Less 10/25 KW Benefit	(5) Avg No Custs on TOU	(6)=(4)/(5) KW benefit Per Cust	(7) Est Wgt Avg Cost Per KW	(8)=(4)x(7) Est Value To Dixie	(9)=(8)/(5) Dixie's Value Per Cust
Feb-07	67.8%	52,298	9.40%	83	170	0.49	\$6,091	\$508	\$3
Mar-07	62.8%	49,158	10.21%	79	170	0.46	\$6,091	\$481	\$3
Apr-07	59.4%	55,950	9.74%	81	170	0.48	\$6,091	\$494	\$3
May-07	63.9%	67,528	8.00%	87	170	0.51	\$6,091	\$527	\$3
Jun-07	65.5%	86,063	8.36%	118	170	0.69	\$6,091	\$719	\$4
Jul-07	71.1%	92,482	8.53%	140	170	0.83	\$6,091	\$855	\$5
Aug-07	69.3%	92,010	7.77%	124	170	0.73	\$6,091	\$756	\$4
Sep-07	70.1%	88,953	7.17%	112	170	0.66	\$6,091	\$682	\$4
Oct-07	61.1%	35,981	9.45%	52	170	0.31	\$6,091	\$317	\$2
Nov-07	59.5%	52,723	7.52%	59	170	0.35	\$6,091	\$360	\$2
Dec-07	72.6%	53,148	12.42%	120	170	0.71	\$6,091	\$731	\$4
Jan-08	71.7%	62,257	10.87%	122	170	0.72	\$6,091	\$740	\$4
Sum		31,311,308						\$7,171	\$42
Average	66.25%					0.58			

Garkane @ 10% Penetration (64 Customers) & 25% kWh shift

	(1) Res % of Total AZ	(2) Total CP Billed KW	(3) AZ % of Total Sys	(4)=Base Case Less 10/25 KW Benefit	(5) Avg No Custs on TOU	(6)=(4)/(5) KW benefit Per Cust	(7) Est Avg Cost Per KW	(8)=(4)x(7) Est Value To Garkane	(9)=(8)/(5) Gark's Value Per Cust
Feb-07	64.9%	38,137	6.69%	41	54	0.76	6.518	\$268	\$5
Mar-07	63.8%	35,609	7.22%	41	54	0.76	6.518	\$268	\$5
Apr-07	52.7%	21,657	6.63%	19	64	0.35	6.518	\$123	\$2
May-07	41.3%	23,453	8.53%	21	54	0.38	6.518	\$134	\$2
Jun-07	42.4%	28,469	8.25%	25	54	0.46	6.518	\$161	\$3
Jul-07	45.2%	31,052	8.72%	30	54	0.56	6.518	\$198	\$4
Aug-07	48.6%	29,819	9.34%	34	54	0.62	6.518	\$219	\$4
Sep-07	45.0%	25,951	9.91%	29	54	0.53	6.518	\$187	\$3
Oct-07	39.9%	31,185	8.11%	25	54	0.47	6.518	\$164	\$3
Nov-07	51.9%	33,838	7.19%	31	54	0.58	6.518	\$205	\$4
Dec-07	58.4%	42,058	7.10%	43	54	0.80	6.518	\$283	\$5
Jan-08	61.2%	44,685	7.34%	50	54	0.92	6.518	\$325	\$6
Sum		14,603,914						\$2,533	\$47
Average	51.28%					0.60			

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BEFORE THE ARIZONA CORPORATION COMMISSION

- MIKE GLEASON
Chairman
- WILLIAM A. MUNDELL
Commissioner
- JEFF HATCH-MILLER
Commissioner
- KRISTIN K. MAYES
Commissioner
- GARY PIERCE
Commissioner

IN THE MATTER OF THE JOINT
APPLICATION OF GARKANE ENERGY
COOPERATIVE, INC. AND DIXIE-
ESCALANTE RURAL ELECTRIC
ASSOCIATION, INC. FOR A WAIVER OF
THE REQUIREMENT OF DECISION NO.
69736 FOR IMPLEMENTATION OF TIME-
BASED RATE SCHEDULES

DOCKET NOS. E-01891A-08-0061
E-02044A-08-0061

DECISION NO. _____

ORDER

Open Meeting
January 13 and 14, 2009
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

1. Garkane Energy Cooperative, Inc. ("Garkane") and Dixie-Escalante Rural Electric Association, Inc. ("Dixie-Escalante") are public service companies certificated to provide electric service to customers located in specifically designated areas within the State of Arizona.

2. Garkane and Dixie-Escalante are member-owned, Utah-based non-profit cooperative associations that supply electricity to their members - most of which are located in the state of Utah.

3. On February 1, 2008, Garkane and Dixie-Escalante filed a Joint Application ("Application") with the Arizona Corporation Commission ("Commission" or "ACC") requesting a waiver of the Decision No. 69736 ("Decision") requirement to implement time-based rate schedules. On July 23, 2008, Garkane and Dixie-Escalante requested that the item be pulled from the July 29-30 Open Meeting Agenda. The reason for the request was to allow the applicant time

1 to develop additional data on meter costs, which they believed would further support their request
2 for a waiver.

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4 Policies Act of 1978 ("PURPA"), Time-Based Metering and Communications standard, as
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7 "(A) Within 18 months of Commission adoption of this standard, each electric
8 distribution utility shall offer to appropriate customer classes, and provide
9 individual customers upon customer request, a time-based rate schedule under
10 which the rate charged by the electric utility varies during different time periods
and reflects the variance, if any, in the utility's costs of generating and purchasing
electricity at the wholesale level."

11 5. Decision No. 69736 requires each electric distribution utility under ACC
12 jurisdiction to offer time-based rate schedules to appropriate customer classes and individual
13 customers upon request. With the Commission's July 30, 2007, adoption of this modified Time-
14 Based Metering and Communications standard, Staff concludes that all electric distribution
15 utilities under ACC jurisdiction are required to offer Commission-approved, time-based rate
16 schedules to appropriate customer classes no later than January 31, 2009.

17 6. Both Cooperatives are all-requirements members of the Deseret Generation and
18 Transmission Cooperative ("Deseret") and, as such, are obligated by contract to take all of their
19 power and energy at wholesale from Deseret.

20 7. Garkane and Dixie-Escalante are billed demand charges based upon each
21 cooperative's load measured at the time of Deseret's Coincident System Peak. There is no time of
22 day or month of year differentiation in the wholesale rates charged to the Cooperatives for capacity
23 or energy purchased from Deseret.

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28 ¹ It should be noted at p. 7 of Decision No. 69736 (lines 14-28) and p. 8 (lines 1-2) that the rate schedule referred to in
Subparagraph (A) may include, but is not limited to, time-of-use pricing, critical peak pricing, real-time pricing or
credits for load reduction agreements.

1 8. According to the Application, the reasons for requesting the waivers are that the
2 Cooperatives are not being required to implement time-based rates in Utah where the considerable
3 majority of their customers are located; time-based rates are not cost-effective for their customers
4 or the Cooperatives primarily because the Cooperatives' rates are not time-differentiated at the
5 wholesale level; and metering costs associated with implementation of time differentiated rates are
6 relatively high (p. 2 of the Application, lines 17-21). Responses to Staff-initiated data requests and
7 follow-up conversations with vendors indicate that the Cooperatives may require a somewhat
8 unique time-of-use ("TOU") meter to integrate with their existing Automatic Meter Reading
9 ("AMR") systems, the TS1 Hunt technologies Turtle System. Staff issued several data requests
10 and contacted suppliers to develop a better understanding of the Cooperatives' metering and meter
11 infrastructures. Staff's findings are as follows:

- 12 • The existing infrastructures include the Hunt Technologies' Standard Turtle TS1
13 transmitter and FOCUS meters that contain modular AMR technologies.
- 14 • The existing systems were put into service approximately 10 years ago, and at that time,
15 were considered to be an advanced technology compared to the then existing electro-
16 mechanical meters that must be manually read each month. Under the TS1 system, meter
17 readings can be obtained electronically on a daily basis and transported over power lines
18 for integration into the Cooperatives' monthly billing systems. The AMR feature was an
19 important upgrade for the Cooperatives in that it practically eliminated the need to dispatch
20 meter reading personnel to far northern Arizona locations to obtain meter reads each
21 month.
- 22 • The existing FOCUS meters are capable of sending billable energy (kWh) and demand
23 (kW) metered data to the Cooperatives over existing power lines, but not in a TOU format.
- 24 • As is discussed in more detail below, Landis+Gyr Energy Management Systems ("L+G")
25 is the meter supplier for the Cooperatives, and L+G's AXS4e poly-phase meter is the only
26 meter they carry that can be integrated into the TS1 Turtle system and provide billable
27 AMR/TOU data. As recently as December 1, 2008, Hunt Technologies (now L+G) verified
28 that their S4e meter is the only meter they carry that can provide meter data in a TOU
format, but as discussed below, it is not a cost-effective meter for residential applications.

9. Staff and the Cooperatives were unable to mutually agree on the best approach to
identify TOU-related incremental costs and the proper recovery of those costs. Staff's approach
considered data and information received from the Cooperatives and their suppliers, and Itron, Inc.

1 (“Itron”). Staff concluded that Garkane and Dixie-Escalante would likely incur costs in excess of
2 \$100,000 to upgrade their respective systems (\$75,000 to upgrade AMR systems, plus \$25,000 to
3 upgrade billing systems). The upgrades would entail replacing the existing TS1, AMR one-way
4 signal system with the TS2, AMR/TOU two-way signal system; plus, upgrading existing billing
5 systems to accommodate TOU billings. Under TS2 systems, there would also be an additional
6 average cost per meter in the amount of approximately \$65. A contrasting option would also be
7 expensive. If the existing TS1 systems are retained, the Cooperatives could replace existing AMR
8 meters with L+G AXS4e poly-phase meters at an incremental installed cost of approximately \$511
9 per meter (Attachment 1), plus \$25,000 to upgrade the existing billing systems. It is important to
10 note that AXS4e poly-phase meters are over designed for residential applications in that they are
11 designed to accommodate complex commercial/industrial metering applications, including 3-phase
12 metering, which makes them more costly compared to basic residential TOU meters. Staff also
13 contacted Itron regarding residential TOU meters and the feasibility of integrating their product
14 with the TS1 Turtle system. Although Itron is not permitted to quote costs on TS1 systems, they
15 believe that their Centron meters costing approximately \$100 each could be integrated with TS1
16 systems to provide residential AMR/TOU readings.

17 10. Garkane and Dixie-Escalante believe that it would be difficult to design effective
18 retail TOU rates given that Deseret’s rates are not time-differentiated at the wholesale level
19 (Application, p. 3, lines 3-5). Staff agrees that it is difficult to develop effective TOU rates that
20 properly recover costs and contain price signals that encourage shifting consumption off the hours
21 normally experienced by Deseret as on-peak. Given that TOU-related implementation costs are
22 estimated to be substantial as discussed above, Staff is willing to work with the Cooperatives to
23 identify a plan of compliance to Decision No. 69736 as is discussed in its recommendations and
24 findings.

25 11. The Application is supported by operating data for the twelve months ended January
26 2008. Garkane reported having approximately 11,350 customers of which only about 690 (6.1
27 percent) are located in Arizona. Dixie-Escalante reported having nearly 13,650 customers of which
28 only about 2,100 (15.4 percent) are located in Arizona. Staff believes that the findings discussed

1 above and statistics shown below, and a Utah Public Service Commission (“Utah Commission”)
 2 decision to not mandate time-based rates for the Cooperatives’ customers located in Utah
 3 (Decision No. 06-999-03, issued February 14, 2007), may have influenced the Cooperatives in
 4 reaching their conclusion that implementing time-based rates would not be cost-effective for their
 5 Arizona customers or the Cooperatives (Application, p.2, lines 18-19).

	Garkane			Dixie-Escalante		
	Utah	Arizona	Arizona %	Utah	Arizona	Arizona %
Annual MWH	170,494.1	14,603.9	7.89%	321,215.8	31,311.3	8.88%
Peak Summer KW CP*	28,310	2,742	8.83%	85,000	7,482	8.09%
Peak Winter KW CP*	41,539	3,146	7.04%	55,994	6,263	10.06%
Total No. of Customers	10,667	690	6.08%	11,545	2,097	15.37%
Rev \$ x 000	\$12,776.8	\$1,197.6	8.57%	\$17,112.0	\$1,915.6	10.07%

*Utah and Arizona split is estimated based on MWH (summer = May-October; winter = November-April)

12 12. Staff believes that it is incorrect to conclude that non-differentiated rates at the
 13 wholesale level and “high metering costs” (Application, p. 2, lines 19-21) automatically preclude
 14 conducting detailed empirical analyses to determine the feasibility of implementing time-based
 15 rates. For example, even at an installed meter differential of \$511, Garkane and Dixie-Escalante
 16 would only have to increase their existing monthly customer charges approximately \$4.15
 17 (Attachment 1). Staff estimates that existing customer charges would increase to approximately
 18 \$16.65 and \$12.55 for Garkane and Dixie-Escalante, respectively. The increase could cover the
 19 annual incremental carrying cost of the S4e meter if it were used for residential TOU purposes.
 20 Under such a scenario, Staff estimates that each residential customer who signs-up for residential
 21 TOU rates could save the Cooperatives an average of approximately \$45 per year through reduced
 22 demand billings from Deseret (see Attachments 2 and 3 and Item B under further support for
 23 recommendations for details).

24 13. Subparagraph (A) of the modified Time-Based Metering and Communications
 25 standard also contains the following requirement (p. 7, lines 9-12): “Within 18 months of
 26 Commission adoption of this standard, each electric distribution utility shall investigate the
 27 feasibility and cost-effectiveness of implementing advanced metering infrastructure for its service
 28 territory and shall begin implementing the technology if feasible and cost effective.” According to

1 page 2 (lines 22-23) and page 3 (lines 1-3) of the Application, the Cooperatives plan to study
2 "smart metering" as required by the Commission's order. Staff believes that the Cooperatives'
3 findings and conclusions regarding advanced metering infrastructures will be documented with the
4 Commission no later than January 31, 2009.

5 Staff's Recommendations and Findings

6 14. Staff has recommended that the Commission grant a temporary waiver of the
7 requirement that Garkane and Dixie-Escalante implement optional time-based rates. Staff further
8 recommends that the temporary waiver expire January 31, 2010.

9 15. Staff has further recommended that no later than January 31, 2009, Garkane and
10 Dixie-Escalante meet the requirements of Decision No. 69736 to investigate the feasibility of
11 implementing an advanced metering infrastructure. If their investigations on advanced metering
12 infrastructures indicate that such infrastructures would not be appropriate, feasible, and cost-
13 effective, within three months of the Commission's decision in this docket the Cooperatives shall
14 provide Staff with copies of the detailed empirical data that clearly identify the economic and
15 societal costs and benefits that support their respective decisions.

16 16. Staff has further recommended that within six months of the Commission's decision
17 in this docket, the Cooperatives be required to provide Staff with copies of detailed quotes,
18 analyses, findings and recommendations that support the Cooperatives' conclusions regarding the
19 feasibility of offering time-based rate schedules. Staff requests that the Cooperatives' support
20 include at least three meter quotes from three different suppliers, and at least one supplier quote to
21 upgrade the existing TS1 and billing systems to accommodate appropriate AMR/TOU meters.
22 Staff is willing to assist the Cooperatives in developing their respective final reports.

23 17. In the event the Cooperatives conclude that it is appropriate to offer time-based rates
24 to their residential customer class, Staff has further recommended that within nine months of the
25 Commission's decision in this docket, the Cooperatives provide Staff with draft copies of proposed
26 rate schedules including detailed data that support time-based rate schedules proposed by the
27 Cooperatives.

28 ...

1 18. In the event the Cooperatives do not file proposed TOU rate schedules that are
2 voluntary rate options for any of their respective Arizona rate classes, Staff has further
3 recommended that within 12 months of the Commission's decision in this docket the Cooperatives
4 be required to provide Staff with detailed empirical data that clearly identify the economic and
5 societal costs and benefits that support their respective decisions.

6 19. Staff further supports its recommendations with the findings that follow:

7 A. Approximately 80 percent of Garkane's and Dixie-Escalante's Arizona
8 customers are residential class customers. Staff believes that given
9 reasonable incremental TOU-related costs, the residential class would
10 be a viable rate class to target for TOU metering due to its TOU-related
11 load shifting opportunities and potential impact on demand billings at
12 the wholesale level.

13 A case in point is Sulphur Springs Valley Electric Cooperative
14 ("SSVEC"). Although SSVEC has substantially more Arizona
15 customers than Garkane and Dixie-Escalante, all three cooperatives'
16 residential classes represent approximately 80 percent of their
17 respective total customer numbers. When SSVEC's residential TOU
18 rates were implemented in 1995, SSVEC's billing arrangements were
19 similar to the circumstances now facing Garkane and Dixie-Escalante
20 in that SSVEC was an all-requirements member of Arizona Electric
21 Power Cooperative, Inc. ("AEPSCO"); SSVEC was billed for demand
22 coincident with AEPSCO's monthly peak for that member class; and
23 demand rates were not time-differentiated at the wholesale level, as is
24 the case for the Cooperatives.

25 The reason Staff cites SSVEC is that SSVEC's February 2008 report
26 on the participation (which is extremely modest) and benefits of TOU
27 rates states that implementing TOU options has saved SSVEC
28 approximately \$315,000 in avoided annual demand charges. The
following quotes from page 3 of the report encapsulate SSVEC's
support of TOU rates: a) "SSVEC would like to continue using the
TOU rates as they provide an economic benefit to the Co-op and give
the members a choice in how to purchase their energy with the
potential for savings by modifying their consumption habits by shifting
their load to the "off-peak" periods." and b) "Because SSVEC is
member owned and we want to act in the best interest of the members,
it is our intent to notify those members who didn't save money by
using the TOU rates that they either need to move more loads to the
"non-peak" periods or consider going back to the non TOU rates"

 These findings encouraged Staff to not recommend a permanent
waiver. Staff believes that TOU-related technologies will continue to
evolve and expects these developments to lower TOU-related

1 infrastructure costs. As advanced metering infrastructure technologies
2 continue to evolve and the costs of adopting these technologies drop
3 lower, Staff believes that costs may reach levels that further encourage
4 electric distribution utilities and their customers to participate in, for
5 example, TOU-related options. It is also noteworthy to mention that in
6 2008 SSVEC selected the L+G TS2 two-way advanced metering
7 system for its members.

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10 B. Staff's approach in determining the feasibility of the Cooperatives'
11 implementation of TOU rates in Arizona includes some rate design and
12 a benefit analysis. Staff assumed that if signing up one residential
13 customer to use TOU rates reduced annual demand billings from
14 Deseret by approximately \$50 (the annual incremental carrying costs
15 of installing TOU meters – see Attachment 1), then it would be
16 appropriate to recommend that Garkane and Dixie-Escalante be
17 required to undertake more comprehensive cost-benefit analyses.
18 Using respective residential rate classes' sales data, Staff developed
19 Attachment 2 to create a base case scenario that identifies Arizona's
20 residential share of total billed kW for the period February 2007
21 through January 2008 (Column 4). Attachment 3 was developed to
22 establish a hypothetical 10 percent penetration with a 25 percent load
23 shift. Attachment 3 indicates that the Cooperatives could
24 hypothetically save an average of approximately \$45 per customer, per
25 year, for each residential customer that signed-up for TOU rates.
26 These results were close enough to Staff's \$50 target to warrant
27 requiring the Applicants to provide additional support for their request.

28 C. Staff's recommendations are reinforced by the Utah Commission's
decision issued February 14, 2007 (Docket No. 06-999-03). The
decision determined that it was not appropriate to adopt the Federal
time-based metering and communications standard as written. Staff
believes that the decision supports Staff's position because TOU rates
already existed in Utah at the time of the Utah Commission's ruling,
and the ruling does not condemn time-based metering. The Utah
Commission was concerned with smart metering-related costs and
benefits, and ordered Rocky Mountain Power² to support its conclusion
that smart metering, as envisioned by the PURPA standard, is not cost-
effective for its applicable circumstances. Staff believes that the Utah
Commission ruling has relevance in this proceeding because Garkane
and Dixie-Escalante did not provide empirical data sufficient to
convince Staff to support their request for a permanent waiver from the
Commission's Decision. Staff continues to believe that the
Commission's requirement to implement time-based rates is
appropriate, provides potential operating benefits for electric

² Rocky Mountain Power is the only PURPA-covered utility over which the Utah Commission has ratemaking authority.

1 distribution utilities, and provides the opportunity to produce positive
2 benefits for retail rate payers.

3 CONCLUSIONS OF LAW

4 1. Garkane and Dixie-Escalante are public service companies within the meaning of
5 Article XV, Section 2 of the Arizona Constitution.

6 2. The Commission has jurisdiction over Garkane and Dixie-Escalante and the subject
7 matter of the joint application.

8 3. The Commission having reviewed the Joint Application for a waiver of the
9 requirement of Decision No. 69736 to implement time-based rate schedules, and Staff's
10 Memorandum dated December 19, 2008, concludes that it is in the public interest to approve a
11 temporary waiver as discussed herein.

12 ORDER

13 IT IS THEREFORE ORDERED that the Joint Application of Garkane Energy Cooperative,
14 Inc. and Dixie-Escalante Rural Electric Association, Inc. for a waiver of the Decision No. 69736
15 requirement to implement time-based rate schedules is temporarily granted as discussed herein.

16 IT IS FURTHER ORDERED that the temporary waiver shall expire January 31, 2009.

17 IT IS FURTHER ORDERED that no later than January 31, 2009, Garkane Energy
18 Cooperative, Inc. and Dixie-Escalante meet the requirements of Decision No. 69736 to investigate
19 the feasibility of implementing an advanced metering infrastructure and if their investigations on
20 advanced metering infrastructures indicate that such infrastructures would not be appropriate,
21 feasible, and cost-effective, within three months of the Commission's decision in this docket
22 Garkane Energy Cooperative, Inc. and Dixie-Escalante Rural Electric Association, Inc. shall
23 provide Staff with copies of the detailed empirical data that clearly identify the economic and
societal costs and benefits that support their respective decisions.

24 IT IS FURTHER ORDERED that within six months of the Commission's decision in this
25 docket, Garkane Energy Cooperative, Inc. and Dixie-Escalante Rural Electric Association, Inc.
26 shall provide Staff with copies of detailed quotes, analyses, findings and recommendations that
27 support Garkane Energy Cooperative, Inc. and Dixie-Escalante Rural Electric Association, Inc.'s
28 conclusions regarding the feasibility of offering time-based rate schedules and such support shall

1 include at least three meter quotes from three different suppliers, and at least one supplier quote to
2 upgrade the existing TS1 and billing systems to accommodate appropriate AMR/TOU meters.

3 IT IS FURTHER ORDERED that in the event Garkane Energy Cooperative, Inc. and
4 Dixie-Escalante Rural Electric Association, Inc. conclude that it is appropriate to offer time-based
5 rates to their respective residential customers, Garkane Energy Cooperative, Inc. and Dixie-
6 Escalante Rural Electric Association, Inc. shall provide Staff with draft copies of the proposed
7 time-based rate schedules, including detailed supporting data, within nine months of the
8 Commission's decision in this docket.

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1 IT IS FURTHER ORDERED that in the event Garkane Energy Cooperative, Inc. and
 2 Dixie-Escalante Rural Electric Association, Inc. conclude that it is not appropriate to offer
 3 voluntary time-based rate options to their Arizona customers, Garkane Energy Cooperative, Inc.
 4 and Dixie-Escalante Rural Electric Association, Inc. shall provide Staff with empirical data,
 5 including detailed economic and societal costs and benefits, that support their respective decisions
 6 within 12 months of the Commission's decision in this docket.

7 IT IS FURTHER ORDERED that this decision shall become effective immediately.

8 **BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION**

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CHAIRMAN	COMMISSIONER
COMMISSIONER	COMMISSIONER
	COMMISSIONER

IN WITNESS WHEREOF, I, BRIAN C. McNEIL, Executive Director of the Arizona Corporation Commission, have hereunto, set my hand and caused the official seal of this Commission to be affixed at the Capitol, in the City of Phoenix, this _____ day of _____, 2009.

 BRIAN C. McNEIL
 EXECUTIVE DIRECTOR

DISSENT: _____

DISSENT: _____

EGJ:WHM:lhm\CHH

1 SERVICE LIST FOR: Garkane Energy Cooperative, Inc. and
2 Dixie-Escalante-Escalante Rural Electric Association, Inc.
3 DOCKET NOS. E-01891A-08-0061 and E-02044A-08-0061

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GARKANE ENERGY AND DIXIE-ESCALANTE
(Docket Nos. E-01891A-08-0061 and E-02044A-08-0061)

Reported Meter and Installation-Related Costs

	<u>Per Meter</u>				<u>Annual CC Rate</u>		<u>Annualized Cost</u>	<u>Monthly Cost</u>
	<u>TOU</u>	<u>Non-TOU</u>	<u>Delta</u>					
Meter	\$ 378	\$ 89	\$ 289					
S&H	\$ 76	\$ 18	\$ 58					
SubTotal	\$ 454	\$ 107	\$ 347	@	9.74%	=	\$ 34	\$ 2.82
Installation	\$ 127	\$ 20	\$ 107	@	9.74%	=	\$ 10	\$ 0.87
Travel	\$ 60	\$ 3	\$ 57	@	9.74%	=	\$ 6	\$ 0.46
Subtotal	\$ 187	\$ 23	\$ 164				\$ 16	\$ 1.33
Total Incremental Meter-Related Costs	\$ 641	\$ 130	\$ 511	@	9.74%	=	\$ 50	\$ 4.15

Staff's Residential TOU Analysis - Base Case
(DOCKET NOS. E-01891A-08-0061 AND E-02044A-08-0061)

Dixie @ 0% Penetration (1,697 Customers)

	(1) Res % of Total AZ	(2) Total CP Billed KW	(3) AZ % of Total Sys	(4)=(1)x(2)x(3) AZ Res Share of Total KW	(5) Avg No Res Custs	(6)=(4)/(5) Avg KW Per Cust	(7) Est Wgt Avg Cost Per KW	(8)=(4)x(7) Est Value To Dixie	(9)=(8)/(5) Dixie's Value Per Cust
Feb-07	67.8%	52,298	9.40%	3332	1697	1.96	\$6.091	\$20,292	\$12
Mar-07	62.8%	49,158	10.21%	3155	1697	1.86	\$6.091	\$19,218	\$11
Apr-07	59.4%	55,850	9.74%	3238	1697	1.91	\$6.091	\$19,720	\$12
May-07	63.9%	67,526	8.00%	3455	1697	2.04	\$6.091	\$21,046	\$12
Jun-07	65.5%	86,083	8.36%	4714	1697	2.78	\$6.091	\$28,713	\$17
Jul-07	71.1%	92,482	8.53%	5606	1697	3.30	\$6.091	\$34,148	\$20
Aug-07	69.3%	92,010	7.77%	4954	1697	2.92	\$6.091	\$30,176	\$18
Sep-07	70.1%	88,953	7.17%	4473	1697	2.64	\$6.091	\$27,246	\$16
Oct-07	61.1%	35,961	9.45%	2077	1697	1.22	\$6.091	\$12,650	\$7
Nov-07	59.5%	52,723	7.52%	2359	1697	1.39	\$6.091	\$14,369	\$8
Dec-07	72.6%	53,149	12.42%	4795	1697	2.83	\$6.091	\$29,207	\$17
Jan-08	71.7%	62,257	10.87%	4854	1697	2.86	\$6.091	\$29,564	\$17
Sum		31,311,308				2.31		\$286,353	\$169
Average	66.25%								

Garkane @ 0% Penetration (543 Customers)

	(1) Res % of Total AZ	(2) Total CP Billed KW	(3) AZ % of Total Sys	(4)=(1)x(2)x(3) AZ Res Share of Total KW	(5) Avg No Res Custs	(6)=(4)/(5) Avg KW Per Cust	(7) Est Avg Cost Per KW	(8)=(4)x(7) Est Value To Garkane	(9)=(8)/(5) Gark's Value Per Cust
Feb-07	64.9%	38,137	6.68%	1652	543	3.04	6.518	\$10,768	\$20
Mar-07	63.8%	35,609	7.22%	1641	543	3.02	6.518	\$10,694	\$20
Apr-07	52.7%	21,657	6.63%	757	543	1.39	6.518	\$4,934	\$9
May-07	41.3%	23,453	8.53%	827	543	1.52	6.518	\$5,389	\$10
Jun-07	42.4%	28,469	8.25%	995	543	1.83	6.518	\$6,485	\$12
Jul-07	45.2%	31,052	8.72%	1225	543	2.26	6.518	\$7,983	\$15
Aug-07	48.6%	29,819	9.34%	1354	543	2.49	6.518	\$8,824	\$16
Sep-07	45.0%	25,951	9.91%	1156	543	2.13	6.518	\$7,532	\$14
Oct-07	39.9%	31,185	8.11%	1011	543	1.86	6.518	\$6,567	\$12
Nov-07	51.9%	33,838	7.19%	1262	543	2.32	6.518	\$6,228	\$15
Dec-07	58.4%	42,068	7.10%	1746	543	3.22	6.518	\$11,381	\$21
Jan-08	61.2%	44,685	7.34%	2008	543	3.70	6.518	\$13,086	\$24
Sum		14,603,914				2.40		\$101,892	\$188
Average	51.28%								

dixiegarkane-08-0061

WHM/9/2008

Staff's Estimate of Residential TOU Conversion Benefits
(DOCKET NOS. E-01891A-08-0061 AND E-02044A-08-0061)

Dixie @ 10% Penetration (170 Customers) & 25% kWh shift

	(1) Res % of Total AZ	(2) Total CP Billed KW	(3) AZ % of Total Sys	(4)=Base Case Less 10/25 KW Benefit	(5) Avg No Custs on TOU	(6)=(4)/(5) KW benefit Per Cust	(7) Est Wgt Avg Cost Per KW	(8)=(4)x(7) Est Value To Dixie	(9)=(8)/(5) Dixie's Value Per Cust
Feb-07	67.8%	52,298	9.40%	83	170	0.49	\$6.091	\$508	\$3
Mar-07	62.8%	49,158	10.21%	79	170	0.46	\$6.091	\$481	\$3
Apr-07	59.4%	55,950	9.74%	81	170	0.48	\$6.091	\$494	\$3
May-07	63.9%	67,526	8.00%	87	170	0.51	\$6.091	\$527	\$3
Jun-07	65.5%	86,063	8.36%	118	170	0.69	\$6.091	\$719	\$4
Jul-07	71.1%	92,482	8.53%	140	170	0.83	\$6.091	\$855	\$5
Aug-07	69.3%	92,010	7.77%	124	170	0.73	\$6.091	\$756	\$4
Sep-07	70.1%	88,953	7.17%	112	170	0.66	\$6.091	\$682	\$4
Oct-07	61.1%	35,961	9.45%	52	170	0.31	\$6.091	\$317	\$2
Nov-07	59.5%	52,723	7.52%	59	170	0.35	\$6.091	\$360	\$2
Dec-07	72.6%	63,149	12.42%	120	170	0.71	\$6.091	\$731	\$4
Jan-08	71.7%	62,257	10.87%	122	170	0.72	\$6.091	\$740	\$4
Sum		31,311,308						\$7,171	\$42
Average	66.25%					0.58			

Garkane @ 10% Penetration (54 Customers) & 25% kWh shift

	(1) Res % of Total AZ	(2) Total CP Billed KW	(3) AZ % of Total Sys	(4)=Base Case Less 10/25 KW Benefit	(5) Avg No Custs on TOU	(6)=(4)/(5) KW benefit Per Cust	(7) Est Avg Cost Per KW	(8)=(4)x(7) Est Value To Garkane	(9)=(8)/(5) Gark's Value Per Cust
Feb-07	64.9%	38,137	6.68%	41	54	0.76	6.518	\$268	\$5
Mar-07	63.8%	35,609	7.22%	41	54	0.76	6.518	\$266	\$5
Apr-07	52.7%	21,657	6.63%	19	54	0.35	6.518	\$123	\$2
May-07	41.3%	23,453	8.53%	21	54	0.38	6.518	\$134	\$2
Jun-07	42.4%	28,469	8.25%	25	54	0.46	6.518	\$161	\$3
Jul-07	45.2%	31,052	8.72%	30	54	0.56	6.518	\$198	\$4
Aug-07	48.6%	29,819	9.34%	34	54	0.62	6.518	\$219	\$4
Sep-07	45.0%	25,951	9.91%	29	54	0.53	6.518	\$187	\$3
Oct-07	39.9%	31,185	8.11%	25	54	0.47	6.518	\$164	\$3
Nov-07	51.9%	33,838	7.19%	31	54	0.58	6.518	\$205	\$4
Dec-07	58.4%	42,058	7.10%	43	54	0.80	6.518	\$283	\$5
Jan-08	61.2%	44,685	7.34%	50	54	0.92	6.518	\$325	\$6
Sum		14,603,914						\$2,533	\$47
Average	51.26%					0.60			

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