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BEFORE THE ARIZONA CORPORATION CC

COMMISSIONERS

Mike Gleason, Chairman
William A. Mundell
Jeff Hatch-Miller
Kristin K. Mayes
Gary Pierce

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Arizona Corporation Commission

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IN THE MATTER OF THE APPLICATION OF UNS ELECTRIC, INC. FOR APPROVAL OF THE ESTABLISHMENT OF JUST AND REASONABLE RATES AND CHARGES DESIGNED TO REALIZE A REASONABLE RATE OF RETURN ON THE FAIR VALUE OF THE PROPERTIES OF UNS ELECTRIC, INC.

Docket No. E-04204A-06-0783
Notice and Filing of the Direct Testimony of Marshall Magruder and Comments Pertaining to the Content of this Direct Testimony
28 June 2007

As provided by the Procedural Orders of 1 February 2007 and 25 June 2007, herein is the Direct Testimony of Marshall Magruder, a Santa Cruz County UNS Electric, Inc. ratepayer. A Supplemental Direct Testimony is anticipated on or before 12 July 2007 to contain the remaining direct testimony..

On 26 June 2007, the Procedural Order of 25 June 2007 was received by this party who has concentrated this testimony primarily on the Demand-Side Management (DSM) issue for reasons discussed later. This UNS Electric, Inc. (UNSE or UNS Electric) DSM issue must be presented. There was no real testimony on DSM Programs or the DSM Adjustor during a UNS Gas Rate Case. No matter how confusing the Applicants testimonies and documentation conflict and diverge, these important DSM programs must be aired and resolved so the UNSE DSM Adjustor rate can be determined objectively in these proceedings.

On 13 June 2007, the UNSE holding company, UniSource Energy Services (UES) which is not a public service company, filed the latest UNS Electric DSM Program Portfolio. This 13 June 2007 filing was NOT referenced in the 25 June 2007 Procedural Order and also has not been in any Applicant's testimony or entered in the record during this proceeding.

1 Even through this could be a concern beyond my purview, this Direct Testimony used the 13
2 June 2007 UES DSM filing as the basis for my DSM testimony herein.

3 In my opinion, the 13 June 2007 UES DSM filing is the only relevant UNSE DSM
4 Program document with detailed information available for review and has superseded all
5 others by UNSE, including that in UNSE's earlier Direct Testimony.
6

7 This party received no indication from anyone there was any consideration about
8 bifurcating and deferring DSM issues for this round of direct testimony. Therefore, I may
9 modify this as supplemental direct testimony by the 12 July 2007 due date, as permitted in
10 the latest Procedural Order, even as I am file my DSM Testimony in this Direct Testimony.
11

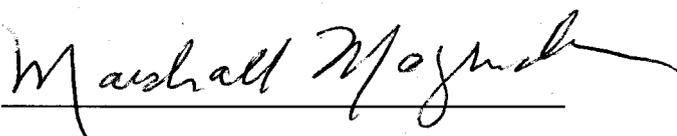
12 Also, this party has received NO testimony from the Applicant that refers to a proposed
13 USNE Portfolio Standard (EPS) and/or the Renewable Energy Standard and Tariff (REST)
14 surcharge.
15

16 In view of recent rejection by UNSE on 19 June 2007 of key elements of a data
17 request, discussed in this testimony, I need to defer my testimony related to (1) UNS Electric
18 costs and expenses to provide reliable electricity in the Santa Cruz service area and (2)
19 CARES and CARES-M Program issues. I expect this will be resolved with a new data
20 request and plan on inclusion of my remaining direct by 12 July 2007.
21

22 I certify this filing has been mailed to the company and all known and interested parties
23 shown in the Service List.

24 Respectfully submitted on this 28th day of June 2007

25 MARSHALL MAGRUDER

26
27
28 By 

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DIRECT TESTIMONY

OF

MARSHALL MAGRUDER

28 June 2007

**In the matter
of the
APPLICATION OF UNS ELECTRIC, INC.,
FOR THE APPROVAL OF THE
ESTABLISHMENT OF JUST AND REASONABLE RATES AND CHARGES
DESIGNED TO REALIZE A
REASONABLE RATE OF RETURN ON THE FAIR VALUE OF THE
PROPERTIES OF UNS ELECTRIC, INC.**

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1 **1.2 Involvement in these Proceedings.**

2 **Q. Why are you involved in these proceedings?**

3 **A.** Both my professional background and involvement in local energy issues have led me to
4 intervene and participate during these proceedings.

5 I have over 40 years of engineering experience with that last few decades as a systems
6 engineer as shown in the Marshall Magruder Resume in Exhibit A. A systems engineer is one
7 who conceptualizes a system based on understanding its needs, its functions, and its
8 expected results.

9 As I learned in my first class in a Systems Management course, a system usually is
10 somewhere between an atom and the universe, each made up of subsystems and each being
11 a subsystem of a larger system. A Systems Engineer looks at the big picture, including
12 economic, environmental, functional, human factors, reliability, and cost issues when
13 designing alternatives and a methodology to assess and select the best alternative to
14 accomplish the task. As Exhibit A shows, many diverse kinds and types of systems have
15 shaped my background with a continuous array of unique experiences.

16 **Q. Have you previously testified before this Commission?**

17 **A.** Yes, I have made appearances at ACC Open and Special Meetings and as a party in ACC
18 Dockets:

- 19 a. Arizona Power Plant and Transmission Line Siting Case No. 111¹ (TEP's CEC
20 Application);
21 b. Docket No. E-01032C-00-0951², the Citizens Purchase Power and Fuel Adjustment Clause
22 (PPFAC) hearings;
23 c. Docket Nos. E-1033A-02-0914, E-01032C-02-0914 and G-01032C-02-0914³, the
24 UniSource-Citizens Acquisition hearings;
25

26
27 ¹ This case was before the Arizona Power Plant and Transmission Line Siting Committee, Case No. 111, and
28 ACC Docket Nos. L-00000C-01-0111 and L-00000F-01-0111 was for "the matter of the joint Application of
29 Tucson Electric Power Company and Citizens Communications Company, or their Assignee(s) for a
30 Certificate of Environmental Compatibility for a proposed 345 kV transmission line system from Tucson
31 Electric Power Company's existing South 345 kV Substation in ... Sahuarita, Arizona, to the proposed
32 Gateway 345/115 kV Substation in ... Nogales Arizona, with a 115 kV interconnection to the Citizens
33 Communications Company's 115 kV Valencia Substation in Nogales, Arizona, with a 345 kV transmission
34 line from the proposed Gateway Substation to the International Border ...," submitted on 1 March 2001."
35 This case resulted in ACC Decision No. 64356. I was an Intervenor and Party. Siting Case No. 111 has
been reopened including ACC Decision No. 82011 that previously closed ACC Docket No. E-01032A-99-
0401.

² This case was before the ACC "in the matter of the Application of the Arizona Electric Division of Citizens
Communications Company to change the current purchase power and fuel adjustment clause rate, to
establish a new purchase power and fuel adjustment clause bank, and to request approval of guidelines for
the recovery and cost Incurred in connection with energy risk management initiatives," on 28 September
2000. This was reflected in ACC Decision No. 66028 of 18 December 2002. I was an Intervenor and Party.

- d. Docket No. E-04230-03-0933⁴, the UniSource-Sahuaro Acquisition hearings.
- e. Reopened and ongoing Docket No. E-01032A-99-0401, the Santa Cruz County service quality, analysis of transmission and proposed Plan of Action case, and
- f. Reopened Arizona Power Plant and Transmission Line Siting Case No. 111,⁵ and which may reconvene depending upon the resolution of the E-01032A-99-0401 Docket.⁶
- g. Open Docket Nos. G-04204A-06-0463, G-04204A-06-0013, and G-04204A-05-0831, the ongoing UNS Gas, Inc., Rate, PGA, and Prudency Cases as a party and intervenor.⁷
- h. Open Docket No. E-04204A-06-0783, for this proceeding as a party and intervenor.

9 **Q. Have you received advise or help from others in preparing you Testimony?**

10 **A.** All filings and testimonies are totally mine, for no one else, and are at my own expense.

11 **Q. Why did you feel a need to intervene in these proceedings?**

12 **A.** When I first read the Application and associated Direct Testimonies, many issues of concern
13 became apparent. As stated in the Magruder Motion to Intervene⁸ these included the following
14 which were used as initial issues of concern that impact ratepayers prior to completing this
15 direct testimony.
16

- 17 a. Proposed base rate increases since the 21% increase in August 2003,
- 18 b. *Mandatory* Time of Use (TOU) tariffs for new residential and small commercial ratepayers
19 including implementation policies for automated metering,
- 20 c. Modified *rate structure* including a proposed overall rate of return of 9.89%.
- 21 d. Proposed Purchase Power and Fuel Adjustment Clause (PPFAC) rate structure,
- 22 e. New purchase power, generation and transmission agreements impacts on ratepayers,
23

24
25 ³ This case was before the ACC "in the matter of the joint Application of Citizens Communications Company
26 and UniSource Energy Corporation for the approval of the sale of certain electric utility and gas utility
27 Certificates of Convenience and Necessity from Citizens Communications Company to UniSource Energy
28 Corporation the approval of the financing for the transactions and other related matters." This case was
29 combined with the Citizens PPFAC Case in ACC Decision No. 66028 filed on 18 December 2002. I was an
30 Intervenor and Party.

31 ⁴ This case was before the ACC "in the matter of the reorganization of the UniSource Energy Corporation." I
32 was an Intervenor and Party.

33 ⁵ This re-opened case is before the ACC. I am an Intervenor and Party in the reopened case.

34 ⁶ This re-opened case is before the ACC. I am an Intervenor and Party in the reopened case.

35 ⁷ There are three cased in this Dockets No. G-04204A-06-0463, "in the matter of the Application of UNS, Gas,
Inc. for the establishment of just and reasonable rates and charges designed to realize a reasonable rate of
return on the fair value of the properties on UNS gas, Inc., devoted to its operations throughout the State of
Arizona" and No. G-04204A-06-0013, "in the matter of the Application of UNS Gas, Inc., to review and
revise its Purchased Gas Adjustor," and No. G-04204A-05-0831, "in the matter of the inquiry into the
prudence of the gas procurement practices of UNS Gas, Inc." This combined case is open, having
completed evidentiary hearings and all briefs filed while it waits for the ALJ's Recommended Opinion and
Order as the next event, probably in mid- to late-August 2007..

⁸ Marshall Magruder Notice to Intervene in Docket No. E-4204A-06-0783 of 12 March 2007.

- 1 f. New generation resources in Nogales for proposed forecasted demand and future impacts,
2 if any, on Reliability Must Run in Santa Cruz County,
3 g. Compliance with various ACC Orders including a City of Nogales Agreement impacts on
4 *system reliability* in Santa Cruz County service area since the last rate case,
5 h. Proposed Demand Side Management (DSM) program including specified demand
6 reduction performance measurement goals and plans for all rate categories,
7 i. Prudence of its existing DSM Program since the last rate case,
8 j. Conservation principles proposed for all rate payers including energy audits and provision
9 of cost-effective energy efficient devices for low income ratepayers,
10 k. Effectiveness of the ACC *Environmental Portfolio Standard* since the last rate case,
11 l. Implementation of the *Renewable Energy Standard and Tariff* for all rate categories,
12 m. Proposed rate policies may blur a clear separation of "cost of service" and "cost of power"
13 as the former is the primary profit mechanism for this distribution utility.
14 n. Potential for any Citizens-UniSource transition of ownership costs to be absorbed by the
15 customers beyond those in the Settlement Agreement, and
16 o. Potential for UNS Electricity, Inc. ratepayers to pay multiple or imprudent charges to
17 UniSource Energy and its subsidiaries including increases in O&M and G&A.

18 Many of these have been included herein; however, some have been delayed due to a recent
19 data request response from UNSE. Some have not been addressed due to discovery issues
20 but will later in these proceedings.

21 **1.3 The Demand-Side Management snafu.**

22 **Q. Do you have some issues that may be in this proceeding or another docket?**

23 **A.** Yes. The proposed Demand-Side Management Program is perplexing as some UNSE
24 testimony requests that a DSM Adjustor to customers rates be determined in this case
25 but the details of the actual proposed DSM Programs to be adjudicated in a separate
26 case.⁹

27
28 The issue here is how can the Commission determine a "fair and reasonable" DSM
29 Adjustor rate before the proposed DSM Programs have been reviewed for prudence,
30

31
32 ⁹ There are several different DSM Program Portfolios or plans presently under consideration in this USNE
33 Electric Rate case, in the UNSG Gas Rate case, and a proposal by UES for a separate case. The Direct
34 Testimonies by UNSG were superseded by a Exhibit DAS-3 filed on 23 March 2007, and then superseded
35 again by a 4 May 2007 "informational" filing, the last but not entered into the record for UNS Gas, Inc. The
Direct Testimony in the ongoing UNS Electric, Inc. docket (this one) contents have been superseded by the
content in a UES letter of 13 June 2007, which requested a separate hearing for the UNSE and UNSG DSM
Program plans, however, the 13 June 2007 has not been entered into the record of this proceeding.

1 reasonably and even if a proposed DSM Program will be approved or denied by
2 the Commission? In fact, my following testimony will not recommend one of the
3 proposed DSM Programs because it is ineffective, environmentally unsound and is
4 aligned with the Company's public relations goals and therefore is not appropriate for
5 ratepayers to finance.

6 UES also stated it has another DSM Program filed in ACC Docket No. E-04204A-06-0783,
7 the ongoing UNS Gas rate case. Testimony shows these are not the "same" programs as UES
8 states in its letter but there are two USNE DSM programs have some similar characteristics
9 with different actions, funding profiles, and requirements.

10
11 **1.4 Additional Issues.**

12 **Q. Have you included all the issues related to this case?**

13 **A.** No, there are several important issues that are related to my Second Set of Data Requests
14 submitted on 4 June 2007. Based on an email by a UNSE attorney on 13 June 2004, a delay in
15 responding to 26 June 2007 was requested. In view of this Direct Testimony being due two
16 days later, my response indicated that sending what was available on 19 June 2007 would be
17 acceptable and the remaining on 26 June 2007. UNSE responded to most of the Data
18 Requests on 19 June 2007 with two Data Requests that additional information was being
19 gathered. These two deferred responses were not received by 27 June 2007. The deferred
20 responses involved CARES and CARES-M.

21 Many of the UNSE Data Request responses were identical with the below response:

22 **"UNS Electric objects to this data request, as it is unduly burdensome and**
23 **outside the scope of this rate cast."**

24 Every data request (DR) with this response (and a few incomplete one) is discussed below as
25 to its relevancy in this case. It also should be noted that the Data Request closely is aligned
26 with the specific areas of my interest, listed above, from the Magruder Motion to Intervene,
27 which had no objectives by the USNE.

28 a. MM DR 2.5 requested status and cost information about present and future service extensions
29 into Mexico.

- 30 (1) Requested the status and financial information about an existing customers residing
31 in Mexico who purchase power for UNSE
32 (2) Requested the status of the ongoing 345 kV transmission line and its costs to date
33 for each UniSource entity, e.g., how much of the \$7 million or so spent to date will be
34 allocated to UNSE ratepayers, TEP ratepayers, and/or shareholders and if these
35 expenses are included in this rate case, when is this line going to be completed as it
is long past its 31 December 2003 in-service date, if UNS intends to "write off" any of
these expenses, correspondence received that shows the DOE Presidential permit
has passed its DOE international reliability review for its cross-border operations,

1 and status of WECC and Mexican approvals on this line including relevant
2 correspondence.

3 b. MM DR 2.6, requested cost of compliance with a Settlement Agreement with the City of
4 Nogales, in particular, several actions that may not be in compliance of the Agreement
5 approved by the Commission in ACC Decision No. 61793.

6 (1) Cost to comply with and status of the mandated Santa Cruz County economic-
7 development efforts including how "new-business incentive tariffs" are being
8 implemented in this Rate Case.

9 (2) Cost to fund and status of the ACC-mandated four-year annual scholarship/loan,
10 which appears not to have been awarded for at least the past three years. **This is**
11 **one of the largest scholarships in this county, provides the Company with an**
12 **excellent way to improve its image in this community, and a way to have**
13 **college graduates return to our community.** My quest for compliance with this
14 agreement will continue until UNSE complies or if compliance is not demanded by
15 the Commission.

16 (3) Cost to fund and the status of the mandated community relations efforts, in
17 particular, the Citizens Advisory Council (CAC), which has one of its duties to
18 discuss Demand-Side Management planning for the community.

19 c. MM DR 2.7 requested information about franchise agreements with cities and towns to
20 determine if a fair balance exists between the cities/towns and the Company.

21 (1) Status of all franchise agreements such as renewal dates.

22 (2) The Franchise Tax associated with each agreement.

23 (3) Total Franchise Tax collected by incorporated entity

24 (4) Status of contentious issues between the Company and these entities (note,
25 Nogales cancelled its agreement in 1999 but voted in September 2003, with 56%
26 approving a new Franchise Agreement with UNSE.)

27 (5) Status of new franchise agreements being considered.

28 d. MM DR 2.8 requested the status of compliance with various ACC orders, noted in the
29 Company's Testimonies, in which compliance is required by report submission to the ACC or
30 other means.

31 (1) Cost to comply with these various orders that impact UNSE rates or capital
32 improvements

33 (2) Annual costs since 2003 to determine trends, ways to consolidate reports to the
34 ACC, or other means to reduce such reports and avoid unnecessary Company
35 expenses.

e. MM DR 2.9 requested information about a new 46 kV transmission line between Pima and
Santa Cruz Counties and rights of way purchase and lease costs for 46 kV and larger
transmission lines on public lands

(1) Annual lease or rental cost for various public domain rights of way.

(2) Estimated costs for public rights of way costs for future expansions listed in the Ten
Year Transmission Plan.

(3) Changes in the existing UNSE Ten-Year Transmission Plan.

- 1 NOTE: previously, I had requested the UNSE Ten-Year Transmission Plan and USNE
2 responded it was available at the ACC website. No UNSE Transmission Plans are posted.
- 3 f. MM DR 2.10 which is very similar to DR 2.9, but for private lands expenses only to date, and
4 there are no references to known expansions.
- 5 g. MM DR 2.17 requested cost, status and performance information for the existing UNSE
6 generation plant at the Valencia Substation.
- 7 (1) Determination of the generation capabilities of this generation plant, as the Beck
8 Testimony used values different from known nameplate data.
- 9 (2) Blackstart capability as this significantly impacts restoration of power and cost of
10 other reliability improvements.
- 11 (3) Determination of emergency load limits in this docket as additional capabilities are
12 present to handle peak loads without additional equipment in this rate case thus a
13 saving to the Company and ratepayers.
- 14 (4) Cost of reactive capabilities, as Mr. Beck testified an additional 25 MVARs were
recently installed to improve reliability.
- 15 (5) Status of meeting NERC/WECC reliability criteria for the four generators. If not, how
16 much will it cost to meet reliability standards?
- 17 h. MM DR 2.18 requested information about the status, capabilities and requirements to improve
18 the four substations in Santa Cruz County. In this service area, the distribution system has
19 been the prime cause of customer outages and significant upgrades to these four substations
20 were recommended in earlier hearings. Without technical information, the determination of
21 cost-effective alternatives becomes more challenging.
- 22 (1) Technical status of the transformation of transmission to distribution power so as to
23 assess if major upgrades are required or can other means can be used to expand
24 the substations capabilities using more efficient and less expensive systems.
- 25 (2) Status of the substations SCADA systems to assess if the substations can handle
possible DSM requirements.
- 26 (3) Pre-set equipment settings to respond to power outages with faster restoration
27 times, as some systems switch to a backup source in a few cycles, in much less
28 than one second, or a light blink even with a major category N-2 or N-3 outages.
- 29 i. MM DR 2.19, indicated that UNSE's response to MM DR 1.9b that designated a website with
30 UNSE Ten-Year and RMR studies. This DR stated these documents are not posted at that site.
- 31 (1) Copies of these key reliability documents were requested for a second time along
32 with working papers of supporting data.
- 33 (2) There was no objection to the first request DR 1.9b that referred me to a website.
- 34 j. MM DR 2.20, requested a summary of the current Purchase Power Agreement with PWCC,
35 since an earlier DR 1.9c, it was denied as being "confidential."
- (1) In other proceedings, this document was provided in public filings and was NOT
confidential, therefore classification should not be an issue.
- (2) In this Data Request, due to UNSE's sensitivity on this issue, only a summary of
changes was requested as a second attempt to determine the financial
relationships that exist with the single electricity source for UNSE.

1
2 k. MM DR 2.21 requested information about the costs for "blue stake" corrective actions. This was
3 not understood in a prior DR 1.11b. The aim of these "blue stake" questions are to determine if
4 the trends are up or down, implying that more funding might be needed for blue stake
5 operations, especially due to new construction activities in both Counties.

- 6 (1) Cost to repair cut lines that were and were not "blue staked" was requested
7 (2) Cost of the five most expensive repair events with descriptions to assess if ways to
8 avoid these could be recommended.
9 (3) Lessons learned from blue stake operations that could make this program more
10 successful. Not asked but in the background, if resultant recommendations should
11 be funded.
12 (4) Annual costs of blue stake operations, to determine trend and changes.

13 i. MM DR 2.25 requested copies of reports listed on Bates (0783)05428 and include

- 14 (1) ACC Ten Year Facilities Construction Plan
15 (2) ACC Environmental Portfolio Surcharge Reports
16 (3) ACC Integrated Resource Plan Annual Report
17 (4) ACC Annual Meter Testing Reports
18 (5) ACC Service Interruptions Annual Reports
19 (6) ACC Monthly PGA Report (only for test year)
20 (7) ACC Environmental Portfolio Information Semiannual Reports

21 m. MM DR 2.29, based on UNSE responses to STF DR 3.2 that stated the backup testimony for
22 two persons (Mr. Ferry and Mr. Beck) will be provided in a supplemental response.

- 23 (1) The UNSE Supplemental Response to STF DR 32. on 10 and 17 May did not
24 include any backup for Mr. Beck's testimony.
25 (2) The response to MM DR 2.29 said there is no backup for Mr. Beck's testimony.

26 n. MM DR 2.30 requested information about the Valencia Substation and the new 100-year flood
27 plain which has this only substation in Nogales underwater.

- 28 (1) Status of additional upgrades to Valencia when a second substation (gateway) was
29 recommended as both a second substation with backup capabilities, to improve local
30 reliability
31 (2) Status of potential requirements by the County Flood Director requiring a 500-year
32 flood plain requirement for the ONLY substation that services about 50% of the
33 UNSE customers and provides the generation facilities used during natural causes
34 to lose power.
35 (3) Cost and status of the contamination cleanup at the Valencia Substation noted in
USNE response STF DR 3.86.

Responses to the above Data Requests and another being prepared may result in additional
issues be resolved in this rate case.

PART II
ISSUES IN THIS TESTIMONY

The following are the primary issues and areas of concern presented in this Testimony

1. Demand Side Management Programs in Part III
2. Administrative Rules and Regulations Changes, Billing Schedules, Predatory Loan/Check Cashing Facilities as Billing Agents, Revised Billing Statement, and R&R Publication in Part IV
3. Cost to Improve Electricity Reliability in Santa Cruz County in Part V, incomplete, see 12 July 2007 Testimony.
4. CARES and CARES-M Tariffs in Part VI, incomplete, see 12 July 2007 Testimony

The first issue is provided with supporting testimony to support the conclusions and recommendations for all seven proposed DSM programs, one of which was NOT recommended. This testimony is in Part III.

The second issues are identical to the same issues from the UNS Gas, Inc., in ACC Docket No. G-04204A-06-0013, et al, with recent testimonial hearings and briefs submitted to the Administrative Law Judge on 20 June 2007, for review and consideration prior to issuance of the Recommended Opinion and Order (ROO) anticipated about mid to late August 2007. To reduce extensive dialog on these two issues, a discussion on each is included in Part IV below while the Magruder Reply Brief on these issues is provided as Exhibit B.

The third issue, involving the ongoing cost of improved reliability in the Santa Cruz service area, was discussed earlier in 1.4 and testimony will be in Part VI below. Completion of testimony on this issue awaits responses to data requests.

The fourth issue, involving administration and cost containment of the CARES-M tariff testimony is in Part VII below. A significant data request on this issue was to have been received by 26 June 2007. It has not been received by 27 June 2007, thus requiring this issue to await the results of this deferred data request.

1 PART III – ISSUE

2 DEMAND-SIDE MANAGEMENT PROGRAMS

3
4 **3.1 UNS Electricity Demand-Side Management Programs.**

5 On 13 June 2007, UniSource Energy Services (UES), for UNS Electricity, Inc., filed with the
6 ACC Docket Control a letter that requested the Commission to

- 7 (1) Establish a docket for consideration and approval of seven proposed DSM Programs;
8 (2) Issue a Procedural Order establishing a hearing schedule in the docket; and
9 (3) Order a Procedural Conference to discuss testimony and exhibits in the docket; and
10 (4) Approve the proposed DSM Programs, contingent upon establishment of a DSM Adjustor to
11 recover costs.¹⁰

12 This UES letter also added three new DSM programs and enhanced the DLC program that are
13 not included the Applicant's Direct Testimonies.¹¹

14 The proposed UNS Electricity Demand Side Management Program portfolio consists of seven
15 programs:

- 16 a. Education and Outreach Program
17 b. Direct Load Control Program
18 c. Low-Income Weatherization Program
19 d. Residential New Construction Program
20 e. Residential HVAC Retrofit Program
21 f. Shade Tree Program
22 g. Commercial Facilities Efficiency Program

23 Each program is independent of others and of similar programs proposed by UNS Gas, Inc. as
24 no synergy between UNSE and UNSG has been proposed, to date. The Education and Outreach
25 Program provides all the external media exposures, training, and marketing support for all UNSE
26 DSM Programs.
27

28 **3.1.1 Basic Types and Definitions of Demand-Side Management Programs.**

29 There are three basic types of DSM Programs,¹² which include
30

31
32 ¹⁰ UNSE letter "Re: UNS Electric, Inc.'s Demand Side Management Program Portfolio Filing, E-04204A-07-
33 _____", hereafter "UNSE DSM Plan (13 June 2007)", at 2.

34 ¹¹ *Ibid.* at 1.

35 ¹² This testimony uses the below three definitions that compose of demand-side management (DSM) where
DMS itself is defined as "The term for all activities or programs undertaken by Load-Serving Entity or its
customers to influence the amount or timing of electricity they use." From the Western Electricity
Coordinating Council Glossary at <http://www.wecc.biz/wrap.php?glossary/index.php>

- 1 a. **Energy Conservation (EC)**, where the ratepayer/customer voluntarily reduces electrical
 2 demand by an action, such as lowering the thermostat setting on a hot day or turning off
 3 appliances when not being used.
- 4 b. **Energy Efficiency (EE)**, where equipment or other devices automatically go to settings or a
 5 mode of operation to reduce the electrical demand, such as an automated thermostat that
 6 used customer/ratepayer's preset time of day changes or when incandescent lights have been
 7 replaced by fluorescent or light emitting diode (LED) lights, which use less power, or sets the
 8 swimming pool pump to operate from midnight to 0400, when demand is very low.
- 9 c. **Demand Reduction (DR)**, where equipment or devices, upon signal to lower electrical
 10 demand, reduces the load of that customer, for example, when the utility uses remote control
 11 to adjust the thermostat to a higher temperature setting to turn off an air conditioner, or
 12 remotely controls one's refrigerator, electric hot water heater, or swimming pool pump.

13 The seven proposed UNSE DSM programs are of the type(s) shown in Table 1.

14 **Table 1 – Types of Demand-Side Management for the Seven Proposed UNSE DSM Programs.**

UNSE DSM Program	Type of DSM	Energy Conservation (EC)	Energy Efficiency (EE)	Demand Reduction (DR)
1. Education and Outreach		Yes	Not as proposed	No
2. Direct Load Control		No	No	Yes
3. Low-Income Weatherization		No	Yes	No
4. Residential New Construction		No	Yes	No
5. Residential HVAC Retrofit Program		No	Yes	No
6. Shade Tree Program		Yes	No	No
7. Commercial Facilities Efficiency		No	Yes	No

22 In paragraphs 3.2 to 3.2, each of these programs is discussed in terms of proposed scope,
 23 references, requirements, verification, and recommended improvements.

24 The 13 June 2007 UES filing, in general, follows the process outlined in a draft ACC DSM
 25 Study which includes ACC Staff Proposed DSM Rules.¹³

26 **3.2 Education and Outreach DSM Program (EC with potential EE).**

- 27 a. **Scope.** This program is designed to educate customers and provides an out reach opportunity
 28 for UNSE to prove its energy expertise by helping its customers solve today's energy problems
 29

30
 31 These three types of DSM programs do not agree with those in the ACC Staff's Draft DSM Report,
 32 Exhibit 1, Proposed DSM Rules at 2. This report states DSM include energy efficiency, load management,
 33 and demand response and does NOT include Energy Conservation as a DSM Program. Further, it includes
 34 customer voluntary actions as a component of demand response which usually is an EC measure. Further,
 35 the definitions above for EC, EE, and DR have clearer boundaries.

¹³ ACC Staff Proposed DSM Rules, Exhibit 1, Draft Demand-Side Rules, Rule R14-2-1705 for the process to
 implement a new DSM program including the requirement of each program proposal. Even in its draft form,
 this is good guidance; however, some enhancement elements have been included in this Testimony. This
 unofficial and draft process appears to be what UNSE is using at its guidance.

1 before they reach crisis levels. The objective of this program is to educate the public at all
2 levels about electricity so they can wisely conserve, make wise energy efficiency choices, and
3 understand how demand response programs benefit both ratepayers and the utility.

4 **b. References.** (1) UNSE DSM Programs (13Jun07) Attachment 1¹⁴, (2) UNSE "Energy Advisor"
5 website, and (3) Insulation Station Learning Kit

6 **c. Program Requirements.** This proposed program includes residential, academic, commercial
7 and Time-of-Use educational programs. Each is targeted for different customers with the
8 annual total being 79,000 residential customers, 10,000 future customers (students), 11,000
9 commercial customers, and an unknown number of TOU customers, respectively. Tools
10 proposed to be used for these four programs include "Energy Advisor", media campaigns,
11 learning kits for K-12 school children, school "Energy Patrol" conservation monitors, as
12 telephone energy assistance. All the proposed implementation tools are passive with a much
13 lower impact than active methods. All UNSE DSM Programs will be emphasized by all forms of
14 media to reach the public.

15 **d. Program Performance Measurement.** Few are proposed; however, many objective
16 measures are possible and recommended below.

17 **e. Conclusion.** At present a weak passive program without feedback, therefore little justification
18 for the proposed funding was presented. Adoption of recommendations could justify level of
19 funding being requested. Emphasis on existing EE and DR programs by this program can
20 improve overall success. The ACC Staff's definition of types of Demand-Side Management
21 Programs¹⁵ does not include EC programs, thus without change, this program might NOT be
22 included as a DSM program

23 **f. Recommendations.** The following are recommended that

24 (1) Add active implementation tools be including:

25 (a) Institute a policy for 100 feedback telephone calls within 3 days after a DSM bill insert
26 mailing to determine receipt, understood and action taken as a performance measure.

27 (b) Provide an active speaker program for ALL local civic and business organizations.
28 Monthly, the *Nogales International* provides well over 50 such organizations where
29 Education programs are applicable with Consumer education for organizations such as
30 Garden Clubs or Rotary clubs; Commercial education for Chambers of Commerce.
31 EACH such organization should have a presentation annually, be provided handouts
32 (such as the light bulb one below) with an annual goal of 2,500 attendees as a
33 performance measure.

34
35 ¹⁴ *Ibid.*, Attachment 1 – Education and Outreach Program, at 1-12.

¹⁵ ACC Staff's "First Draft of Proposed DSM Rules, R-14-2-1702, Definitions at 2.

1 (c) Provide return in your billing envelop billing inserts to include "I want more information
2 about ____," please have an Energy Advisor call, light bulb information (below), and
3 even some simple contests (\$50 Saving Bond awards), sign up for the UNSE Energy
4 eNewsletter, etc.

5 (2) Develop into an Energy Efficiency (EE) program by having results monitored, assessed,
6 and customers actions recognized. For example, a bill stuffer could be stress changing
7 light bulbs with a coupon attached so one could mail in UPCs and store receipts for
8 purchasing fluorescent light bulbs for a 50 cent rebate as reduction in next month's bill up
9 to six per month (\$3.00). (with several performance measures)

10 (3) Create an Energy eNewsletter (at least bi-weekly) where frequent EC and EE news is
11 provided to customers including the latest federal EE and Arizona tax credits, impact of
12 using your swimming pool pump on your TOU bills, and other ways to have UNSE become
13 your "expert" on EC and EE matters including feedback from ongoing DSM programs.
14 Measure number of eNewsletter subscribers.

15 (4) Expand "Telephone Energy Assistance" to **ALL** ratepayers; not just commercial
16 customers, as all should be able to "ask an energy question and receive an answer."

17 (5) Include building contractors and developers in the Commercial educational programs to
18 cover comprehensive building EE requirements with introductions to other UNSE DSM
19 programs. Better would be develop a series of presentations leading to a qualification, with
20 a "UNSE Building Energy Efficiency Graduate" as a diploma has *de minimus* cost but high
21 psychological benefits. Establish a minimum goal of 50 or graduates per year.

22 (6) Aggressively pursue achieving and surpassing performance measures.

23 (a) Number of light bulb rebates after a flyer mailing (from telephone interviews) or
24 presentation noting percent and trends.

25 (b) Number of individuals and school children who attended a UNSE energy presentation.

26 (c) Increase the number of grades and "learning kits" used in the academic program, such
27 as a "basic electricity and safety" in the 8th grade (at least 3 lessons) and
28 "understanding your electricity bill" in the 12th grade (at least 3 lessons).

29 (d) Increase in use of Energy Advisor after a directed media campaign to determine the
30 media campaign effectiveness such as number of hits per page per month to determine
31 which pages (information) are of interest. Use Energy Advisor to collect information,
32 and then analyze to determine customer's interests, which should be used for focus
33 media campaigns.

34 (e) Results of short oral or written quizzes after the 4th Grade classes to determine
35 understanding and percent who complete all the "fill-ins" in their notebooks.

(f) During civic or business presentations, requests for number of “hands” who know about “Energy Advisor” and “how many have used Energy Advisor.” Ask for their feedback, same questions, record numbers, note trends and percentages.

(7) Ensure Energy Advisor is capable of displaying all Time-of-Use (TOU) information, specifically tailored to that customer’s account using that customer’s current and at least the prior two years bills with calculators necessary to make a TOU decision. Without personal account information, the customer is blind. Further, for customers on TOU, they should be able to determine their fifteen-minute demand loads for the prior twelve months, as a minimum. This is required to understand when (day/time of day) their peak, shoulder, and off-peak demand occur in order to reduce their electric load. Specifically, their high 15-minute demands (Peak, Off-Peak, Shoulder) are used to calculate their entire monthly bill. Further, this should be very easy for customers to understand.

(8) Ensure Energy Advisor can show a customer’s account data for assessing changing to “levelized” payment plan.

(9) Place an English/Spanish language toggle on the Energy Advisor home page.

(10) Change the ACC Staff’s Draft DSM Report definitions for types of DSM Programs to agree with those herein, because, as presently worded, the Education and Outreach Program is not a DSM program.

(11) Determine the annual costs of this program, and then divide by the total of a weighted number of monthly customers, so this program’s DSM Adjustor can be calculated.

Table 2 – Summary of Proposed Educational and Outreach Programs.

Tools	Programs	Residential	Academic	Commercial	Time-of-Use (TOU)
Energy Advisor	(1) Home Energy Analysis (2) Energy Saving Calculator		Yes	Business Energy Advisor with case studies	It is expected (but not stated) that customer’s TOU benefits are included.
Consumer Education	Media campaign (bill inserts, radio ads, homepage icons)		NA	Media campaign (bill inserts, radio ads, homepage icons)	Media campaign (bill inserts, radio ads, homepage icons), door tags, brochure
Insulation Station learning kit		NA	4 th Grade	NA	NA
Energy Patrol conservation monitors		NA	K-12 th Grade	NA	NA
Telephone Energy Assistance	Not proposed; however, recommend inclusion		Yes	Yes (LPS customers are assigned account managers)	Customer Service Reps to provide TOU information

1 **3.3 Direct Load Control (DLC) DSM Program (DR).**

2 **a. Scope.** This demand reduction program is designed for UNSE to reduce customer critical
3 demand for reliability or for economic reasons. As presented, this is a weak program. The
4 objective of the DLC program is to provide a mechanism for UNSE to reduce electricity
5 demand. UNSE will publicize this program under the Education and Outreach program (see
6 3.2) The benefits of this program are ¹⁶

7 (1) An annual on peak demand reduction of 9,400 kW¹⁷ which is equivalent to \$6.58 million
8 (9,400x700) in capital cost savings by the Company for peaker gas turbines, using
9 \$700/kW¹⁸ or significantly higher if coal or nuclear power plants were required to meet this
10 additional peak load.

11 (2) A total annual reduction of 318,000 kWh cumulative demand during the Peak TOU hours
12 (averaged) or 90.9 kWh (318,000/3,500) per participant, equivalent annual savings of about
13 \$9.00 savings per resident in lower electric bills.¹⁹

14 (3) The TOTAL reduction of green house gas (GHG), other air pollutants and saved water from
15 2008 to 2012 is estimated to be:

16

GHG	Saved in Pounds	GHG	Saved in Pounds	Others	Saved or not generated
CO2	2,331,794	SO2	1,119	Water	XXX gallons
NOx	3,614	Ozone	XXX	Mercury	XXX oz

17
18

19 (4) At an annual implementation cost (DSM Adjustment) of \$XXX.XX (\$1,968,000/XXXXX) per
20 new participant in 2008 reducing to \$XXX.XX (\$1,537,637/XXXXX) in 2012.²⁰

21 (5) At a month DSM Adjustor surcharge of \$XX.XX per kWh per residential customer for this
22 program, or on an average bill of \$X.XX for monthly usage of XXXX kWh.

23 (6) This program has a society test benefit effectiveness ratio of 1.21.²¹

24 **b. Reference.** UNSE DSM Programs (13 June 07), Attachment 2²²

25 **c. Program Requirements.** This proposed program includes installation of DLC on about 35,000
26 residential central air conditioning and small to mid-sized commercial systems within the next
27 ten years, averaging 3,500 installations per year with 95% expected to be residential and 5%

30 ¹⁶ Based on the recommendations below, the existing benefits will change, thus it is recommended that all the
31 XXX's in this subparagraph be completed in the applicant's Rebuttal.

32 ¹⁷ UNSE DSM Programs (13 June 2007), Attachment 2, Table 4 at 8.

33 ¹⁸ Direct Testimony of Edmond A. Beck on Behalf of UNS Electric, Inc., of 15 December 2006, hereafter "Beck
34 Direct Testimony" at 6 and 11 which state that a 20,000 kW LM-2500 gas turbine was installed in Nogales
35 for approximately \$14 million, or for \$700/kW (14,000,000/20,000)

¹⁹ *Ibid.*

²⁰ *Ibid.*, Attachment 2, Table 2 at 7.

²¹ *Ibid.*, Attachment 2, Table 6 at 8.

²² *Ibid.*, Attachment 2 – Direct Load Control Program at 1 to 16.

1 commercial systems. UNSE will establish the communications protocols, install software and
2 determine vendor services to implement DLC. UNSE will formally establish a baseline so
3 additional DR programs can be added and conduct analyses of process, operations, customer
4 satisfaction, and program energy impact to determine program success. UNSE will either
5 internally accomplish or contract-out the DLC program. UNSE has not conducted a pilot DLC
6 program.

7 Based on

8 "favorable geographic, demographic and market characteristics, this DLC Program
9 will only be available to customers located in the Lake Havasu area. UNS Electric
10 will not offer the DLC Program to schools, retirement homes, hospitals or to other
11 customers who have the need for stringent temperature and/or humidity control.
12 UNS Electric has no requirements that customers meeting the above are also
13 required to utilize a TOU rate, but TOU customers are not precluded from
14 participation in the DLC program.²³ [emphasis added]

15 The UNSE DLC Program will use an on/off "50% cycle for each customer during the control
16 event."²⁴ UNSE also states:

17 "UNS Electric intends to reserve control periods to those hours when the cost of
18 purchase power on the wholesale market meets or exceeds \$115/MWh (this is to
19 remain within a limit of 100 hours per year). Customer selection is part of the
20 information technology set-up protocol. Depending on the MW reduction needed
21 during each control event, a specific group of customers from the top of the list is
22 selected for control. If the control event lasts longer than the maximum of four-hour
23 time period, the first set of customers return to normal generation and a new set of
24 customers replace them for the duration of the event. Once a customer has been
25 interrupted once, they move to the bottom of the list and will not be controlled again
26 until their name moves to the top of the list again."²⁵

27 **d. Program Performance Measurement.** The proposed 50% cycling appears to be too high
28 (see conclusion (2) below) and average impact per thermostat (or installation) too low when
29 other readily available electrical equipment can be easily added to the DLC system at minor
30 expense with high energy reduction readily available. Thus, the estimated energy savings
31 needs to be redone. Further, the new installation costs need to be broken down into labor plus
32 specific equipment (thermostat at \$150/installation, \$XX two-way communications pager, \$XX
33 appliance and pool pump controls, etc.) with higher anticipated customer and UNSE savings
34 included in the forthcoming UNSE Rebuttal.

35 **e. Conclusions.**

33 ²³ UNSE Response to Magruder Data Request MM DR 2.13.c; UNSE DSM Program (13 June 2007) at 2
34 states that of the 79,000 UNSE residential customers at 11,000 commercial customers, approximately
35 31,000 residential customers and 4,000 small commercial establishments are in the Lake Havasu area.

²⁴ UNSE Response to Magruder Data Request MM DR 2-13.c

²⁵ UNSE Response to Magruder Data Request MM DR 2.13.d

- 1 (1) A correct description of the proposed UNSE DSM Program must be in the UNSE
2 Testimony, as Mr. Ferry's is erroneous and should be stricken or replaced in Rebuttal.
- 3 (2) A 50% cycle time (OFF for up to 2 hours in a four-hour cycle) in one of the hottest locations
4 in the county is a cycle time that maybe hazardous to those whose air conditioners are
5 required for nearly 100% of the time. A review of a successful Florida Power and Light DLC
6 program has a 15-minute OFF cycle not more than once every four hours. This would be
7 satisfactory since Florida is also a hot weather area. This will greatly reduce the "benefit"
8 computations by about 87.5% (2 consecutive hours OFF per four hours to 0.25 hours OFF
9 per four hours).
- 10 (3) Air conditioners are the only equipment included in the proposed UNSE DLC program.
11 Other companies have also used DLC for other high electricity demand equipments, to
12 greatly improve the efficiency and benefits of DR and are an especially appropriate option
13 for TOU customers who want to reduce their demand and electricity bills. These include
14 (a) Swimming pool pumps to OFF for entire peak/shoulder TOU periods,
15 (b) Electric hot water heaters to OFF during entire peak TOU periods,
16 (c) Electric dish washing, clothes dryers and washing machines,²⁶ to OFF during peak
17 TOU periods, and/or
18 (d) Refrigerators and Freezers for 15-minute cycles same as air conditioning. Both of these
19 appliances generate interior heat, therefore it is better for the air conditioner to not be
20 running whenever air conditioning is cycled to OFF.
- 21 (4) Since UNSE has not been involved in a DLC program of this magnitude, nor has TEP, then
22 use of commercial off-the-shelf (COTS), proven, DLC hardware and DLC software that use
23 common, industry-standard protocols and standards, is the only way to install this kind of
24 system. NO unique, proprietary software or hardware should be considered under any
25 circumstance for this program as future interoperability and expansion depend on open
26 system architectures, as "closed" systems are always losers after their first few years of
27 operations, as equipment sources dry up, software protocols change, and unless
28 completely open, future expansion options are closed early and your system becomes
29 rapidly obsolete, requires extensive maintenance and replacement, long before the its life
30 cycle requires. Hire the best consultants, but beware of any "exclusive" or "trust me"
31 promises. Proven systems, by definition, work. Unproved ones don't.

32
33
34 ²⁶ In Arizona, during the summer peak TOU periods, hot water heaters could be between 100F and 120F or
35 higher with ambient air temperatures but dish and clothes washing may require higher temperatures on hot
cycles, thus, whenever a DLC cycle turns OFF an electric hot water heater, both electric cloths washing and
dishwashing machines should be synchronized temporally with its electric hot water heater.

1 (5) NO incentive is provided for customers to use DLC, except to reduce load during peak or
2 shoulder TOU periods. A free thermostat is a 'given' and not enough to be worth enrolling
3 in the DLC program; however computation of the total energy savings for air conditioners,
4 electric water heating, dish and clothes washing machines, and clothes dryers; swimming
5 pool pumps, maybe be enough to persuade some but it would seem not enough to make
6 DLC successful.

7 Financial incentives are usually given for DLC programs, either in the form of a flat rate
8 reduction or a calculated "bonus" due to lower electricity consumption that is applied to
9 one's rate. I received a 13% rate reduction for a voluntary DR program (really EC) to avoid
10 use the above equipment during peak demand periods with no oversight or detailed legal
11 agreements with the utility.

12 Better than a "flat" reduction would be a calculated "saver bonus" based on actual,
13 measured savings printed on one's bill. This could compare last year to this year, last
14 month to this month, account for weather differences, and actual "demand you reduced"
15 during the prior month. Such a "bonus" could only be awarded when significant "benefits"
16 occur with lower purchase price for electricity and avoided infrastructure costs to the utility.
17 In one case, FPL avoided about \$3 billion with a DR program for A/C, electric water
18 heaters, pool pumps, and clothes dryers installed and paid by FPL (not ratepayer) company
19 expense. FPL gave a flat rate reduction of \$13 per month.

20 **f. Recommendations.** It is recommended that:

- 21 (1) CARES-M customers, required to have electric-powered life-support equipment, be
22 excluded from participating in a DLC program unless on-site determination can be reviewed
23 by UNSE and the equipment DLC cycling scheme approved in writing by the attending
24 physician.
- 25 (2) Mr. Ferry's Direct Testimony on the proposed UNSE DSM programs in this docket is
26 erroneous, misleading and divergent from the 13 June 2007 UES filing. Mr. Ferry's
27 Testimony on proposed USNE DSM programs²⁷ must be stricken and from the 13 June
28 2007 filing inserted in to the record for these proceeding.

29
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32 ²⁷ Direct Testimony of Thomas J. Ferry on Behalf of UNS Electric, Inc., of 15 December 2006, hereafter "Ferry
33 Direct Testimony", at 14 (starting at B. Proposed DSM Programs) to 22 (ending at VII. Rules and
34 Regulations. Some of the gross errors include different program names, he would not make DLC programs
35 available to "preschool and senior care facilities" while all schools, retirement homes, hospitals, and other"
are included in the 13 June version. In general, these pages in his testimony *en Toto*, have to be replaced in
this application prior to consideration for approval. In addition, if only Lake Havasu area is to be considered
until 2012, then many changes are also required in the 13 June 2007 plan to indicate this limitation.

- 1 (3) Reduce the 50% cycle time from two hours per four-hour cycle to 15-minutes per four-hour
2 cycle, and to read "12.5% percent OFF cycle, not exceeding 15-minutes, per four-hour
3 cycle."
4 (4) Add more Demand Response options for customers, including the following equipment
5 options:
6 (a) All swimming pool pumps OFF during all Peak and Shoulder TOU periods, unless solar
7 water heater installed, then a small recirculation pump is permitted to be bypassed but
8 not the regular pool pump used to power pool cleaning equipment.
9 (b) All electric hot water heaters OFF during Peak TOU periods.
10 (c) All electric dish washing, clothes dryers and washing machines OFF during all Peak
11 TOU periods.
12 (d) All electric refrigerators and freezers on the same 15-minute cycle schedule as
13 proposed by UNSE for air conditioners.
14 (e) Other electric equipment that has high demand loads, such a sump or water well pumps
15 that the customer wants added to the DLC Program as a way to reduce Peak and
16 Shoulder loads, thus reduce that customer's TOU electric bill. In particular, small
17 commercial ratepayers might want to cycle high energy cost systems OFF during Peak
18 TOU periods.
19 (f) Revise proposed DLC Participation Agreement and program costs²⁸ In particular, try to
20 reduce the length of the Participation Agreement by reducing redundant, superfluous
21 words by using customer-oriented "plain" English at the ninth grade reading level
22 (5) Based on 3 and 4 above, recalculate Estimated Energy Savings²⁹ so program "benefits"
23 can be determined. These additional equipment loads will increase Company and
24 ratepayer savings.
25 (6) Determine and institute some kind of financial incentive for the ratepayers, with a "bonus"
26 approach being considered superior to a flat rate rebate.
27 (7) Change to DLC Participant Agreement to include making telephonic changes to this
28 agreement to match the program description.³⁰
29
30

31 ²⁸ UNSE DSM Programs (13 June 2007), Attachment 2 at 7-8, Appendix 1 at 9-12; Appendix 3 at 14-15,
32 Appendix 4 at 16.

33 ²⁹ *Ibid.*, Attachment 2, at 7-8.

34 ³⁰ UNSE DSM Programs (13 June 2008), Attachment 2 at 5 states "Participant will have the right at any time to
35 over-ride a specific control event by notifying UNSE in writing or by telephone. Participant will have the right
at any time after the first year to terminate the service by notifying UNSE in writing or by telephone." [note,
"in writing" during a four-hour control event is not realistic.]. This statement is not reflected in Appendix 1
(DLC Participant Agreement) and contradicts paragraphs 9 and 21.

1 (8) Only Off-the shelf, proven, already developed DLC hardware and software using
2 commercial, open systems architecture, industry standard IT protocols, without any
3 proprietary software be purchased and integrated for the DLC program with none
4 developed from scratch by any UniSource entity.

5 (9) Determine the annual costs of this program, then divide by the total of a weighted number
6 of monthly customers, so this program's DSM Adjustor can be calculated.

7
8 **3.4 Low-Income Weatherization (LIW) DSM Program (EE).**

9 **a. Scope.** This DSM program is designed to assist lower-income customer's abilities to pay their
10 utility bills by improving the energy efficiency of their residence to lower their consumption and
11 thus monthly UNSE and UNSG bills. The objective of the LIW is to modify, add, or change the
12 residence to lower consumption. The utility costs of this low-income customer program will be
13 borne by all customer classes.³¹ UNSE will publicize this program under the Education and
14 Outreach program (see 3.2)

15 The benefits of this program are:

- 16 (1) An annual on peak demand reduction of 0.371 kW and 70 therms of natural gas³².
17 (2) A total annual reduction of 1,091.7 kWh which will save \$150.69 per LIW ratepayer per
18 year and 70 terms of natural gas which saved a total \$97.97 in gas bills.³³
19 (3) The TOTAL reduction of green house gas (GHG), other air pollutants and saved water from
20 2008 to 2012 is estimated to be:³⁴

21

GHG	Saved in Pounds	GHG	Saved in Pounds	Others	Saved
CO2	377,602	SO2	181	Water Saved	XXX gallons
NOx	585	Ozone	XXX	Mercury	XXX oz

22
23

- 24 (4) At an annual implementation cost of up to \$2,000.00 per participant.
25 (5) At a month DSM Adjustor surcharge of \$XX.XX per kWh per residential customer for this
26 program, or on an average bill of \$XXX,XX
27 (6) This program has a society test benefit effectiveness ratio of 0.453.³⁵

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29
30 ³¹ ACC Staff's First Draft of Proposed DSM Rules, Exhibit 1, Draft Demand-Side Management Rules, Rule
31 R14-2-1706.D at page 6.

32 ³² UNSE DSM Programs (13 June 2007), Attachment 3 "Low-Income Weatherization Program, Table 4 at 6.
33 The annual peak demand used the noncoincident peak savings is 3 kW; however the data in Appendix 2 at
34 13 shown 0.371 kW as "Non. Coin. Demand Savings (kW)". This difference is not explained.

35 ¹⁵ *Ibid.* Appendix 2 at 13. The total annual reduction (saved electricity) totaled the winter and summer kWh
savings, the savings per ratepayer multiplied total annual reduction times cost (\$0.9688/kWh) or \$150.69.
This table also shows customer cost savings at \$203.79. This difference is not explained. The Therms
savings is from this page and multiplied by cost/Therm of \$1.40 equaled natural gas savings.

³⁴ *Ibid.* The Company's Rebuttal will need to complete the rest of this table shown by "XXX"

1 **b. Reference.** UNSE DSM Programs (13 June 2007) Attachment 3.³⁶

2 **c. Program Requirements.** Eligible low-income participants are referred to this program by
3 community service agencies³⁷ who determine the customer's priority for LIW assistance.
4 Initially, funding will be provided for 40 LIW participants in 2008 increasing to 45 in 2012 by
5 UNSE while the community service agency implements the UNSE LIW program, along other
6 federal and Arizona LIW programs, its local process, thus there will be variations throughout
7 the UNSE service area.

8 UNSE will report the lost revenues to be recovered.³⁸

9 **d. Program Performance Measurement.** This program includes a long list of items³⁹ that the
10 community service agencies can include when it contracts for weatherization. The agencies
11 will update tracking software and submit invoices to UNSE for reimbursement.⁴⁰ Using both the
12 software inputs and invoices, UNSE can determine which EE devices, equipment, appliances
13 or work tasks accomplished for its contribution to the service agency. These are then used to
14 assess LIW performance. The LIW Program Costs shows many managerial, clerical, General
15 and Administrative (G&A), labor, materials, labor activities (such as curriculum development,
16 and customer education), facilities audits, rebate processing and inspection, CARE billing
17 assistance, with a total budget of \$106,000 for the LIW program.⁴¹ It is also noted that the
18 CARES rate discount is not a DSM Program; however, the recipients may be the same for LIW
19 and CARES, including CARES-M.

20 The LIW Program "monitoring and evaluation plan" seems excessive. IF well-written
21 contracts are implemented with each agency then installation data reporting can and should be
22 embedded in such contracts, including on-line "forms" the contractor fills to enter directly into a
23 database. UNSE monitors and provides feedback to the community service agency with
24 voucher payment being dependent on correct, timely, and complete data reporting.

25 **e. Conclusions.**

26 (1) The Program Costs should include only the program charges necessary to accomplish the
27 LIW program following from Appendix 1, therefore a summary of the LIW Costs is shown
28 in the below Table 3.

31 ³⁵ *Ibid.* Table 6 at 6.

32 ³⁶ UNSE DSM Programs (13 June 2007), Attachment 3 "Low-Income Weatherization Program: at 1-19.

33 ³⁷ Mohave County is serviced by the Western Arizona Council of Governments (WACOG) and Santa Cruz
34 County by Southeastern Arizona Community Action Program (SEACAP).

35 ³⁸ UNSE DSM Programs (13 June 2007), Attachment 3 at 6.

³⁹ USNE DSM Programs (13 June 2007), Attachment 3, at 14-18.

⁴⁰ *Ibid.*, Appendix 3, Low-Income Weatherization Program Implementation Process at 19.

⁴¹ *Ibid.*, Appendix 1, Program Costs at 8-12.

Table 3 – LIW Program Budget with Proposed Change.

Budgeted Item	Budget	Comments
Administration Costs		
Managerial and Clerical Labor	\$14,175	No change
Travel & Direct Expenses	0	No change
Overhead (G&A) Labor and Materials	\$1,575	No change
Subcontracted Marketing Expenses	0	No change
Total Administrative Costs	\$15,750	No change
Direct Implementation		
Financial Incentives to Customers	\$79,947	No change
CARES Billing Assistance	\$2,552	Delete CARES Billing Assistance
Total Evaluation, Measurement, Verification	\$4,200	No change
TOTAL Implementation Cost	\$84,147	Deleted \$2,552 for CARES Billing
Total Budget	102,448	Deleted CARES Billing Assistance

(2) This program uses 82.1% (79,947/102,448) of its costs going directly to LIW participants; however, the Company should look for ways to reduce its administrative costs.

f. Recommendations. It is recommended that:

- (1) Program environmental benefits include other parameters, such as potable water saved, pounds of Ozone, ounces of Mercury, and others which might be unique environmental contributions to society.
- (2) CARES Billing Assistance \$2,552 be deleted in the LIW Program Budget as CARES is a rate issue. All CARES and CARES-M costs are calculated in the rate structure.
- (3) The benefits in terms of the proposed residential rates need to be recalculated.
- (4) This programs DSM Adjustor be determined by dividing the number of monthly customers by the annual cost of this program
- (5) It should be noted that “the Commission shall determine whether a utility may be allowed to recover lost net revenue.”⁴² This decision has not been made by the Commission.

3.5 Residential New Construction DSM Program a.k.a. Energy Smart Homes (ESH) (EE).

a. Scope. This program will provide Energy Smart Homes (ESH) to emphasis the whole-house approach to improving health, safety, comfort, durability and energy efficiency for homes that meet the EPA/DOE Energy Star Home[®] performance requirements. All UNSE homes are in IECC⁴³ region 3. Required on-site inspections and field testing will be conducted to ensure the

⁴² ACC Staff's First Draft of Proposed DSM Rule, Exhibit 1 Draft Demand-Side Management Rules, R14-2-1709.B, which states “The Commission shall determine whether a utility may be allowed to recover lost net revenue.” Also the utility expenses may decrease in this DSM program.

⁴³ International Energy Efficiency Code (IECC) of 2006 which is embedded in the International Building Code (IBC) that has been adopted by both Santa Cruz and Mohave Counties (Mohave's becomes effective 1 September 2007).

1 performance standards are achieved. UNSE will publicize this program under the Education
2 and Outreach program (see 3.2)

3 The benefits of this program include ⁴⁴

4 (1) An annual peak demand reduction of 395 kW in 2008 and increases to 623 kW in 2012.⁴⁵

5 (2) This peak reduction is equivalent of saving \$276,500⁴⁶ (395x700) in capital costs for new
6 "peaker" generation facilities which can save the Company future capital costs using
7 \$700/kW for a gas turbine, or much higher costs for coal or nuclear power plants in 2008
8 and \$427,700 (611x700) in 2012.

9 (3) A total annual reduction of 470,111 kWh energy savings in reduced demand and 28,619
10 Therms in 2008, increasing to 726,430 kWh energy savings and a total 44,221 Therms in
11 2012.⁴⁷

12 (4) The annual implementation cost of \$1,042.18 per participant (\$420,000 /403 homes) in
13 2008 decreasing to \$686.59 per customer (\$427,714/ 623) in 2012.⁴⁸ Only \$400 of which is
14 provided as a rebate, thus the cost/benefit ratio is 2.605 (1042/400) which is too high.

15 (5) The TOTAL reduction of green house gas (GHG), other air pollutants and saved water
16 from 2008 to 2012 is estimated to be:

GHG	Saved in Pounds	GHG	Saved in Pounds	Others	Saved
CO2	5,168,086	SO2	2,479	Water	XXX gallons
NOx	8,010	Ozone	XXX	Mercury	XXX oz

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21 (6) At a month DSM Adjustor surcharge of \$XX.XX per kWh per residential customer for this
22 program, or on an average bill of \$X.XX for monthly usage of XXXX kWh.

23 (7) This program has a society test benefit effectiveness ratio of 1.92.⁴⁹

24 **b. References.** (1) UNSE DSM Programs (13Jun2007) Attachment 4; (2) DOE Energy Smart
25 Home[®] website at www.energystar.gov ; (3) UNSE Website Energy Advisor.

26 **c. Program Requirements.** UNSE will establish the infrastructure necessary to promote, build
27 and qualify Energy Star Homes[®] in its service area.

28 UNSE will report the lost revenues to be recovered.⁵⁰

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31 ⁴⁴ Based on the recommendations below, the existing benefits will change, thus it is recommended that all the
32 XXX's in this subparagraph be completed in the applicant's Rebuttal.

⁴⁵ UNSE DSM Programs (13 June 2007), Attachment 4, Table 5 (not paginated).

⁴⁶ *Ibid.*

⁴⁷ *Ibid.*

⁴⁸ *Ibid.* Cost per Participant use Total Budget Costs from Table 4, divided by number of projected participants
34 in Table 5.

⁴⁹ UNSE DSM Programs (13 June 2007), Attachment 4, Table 7, Benefit-cost analysis results (pages
35 unnumbered)

1 **d. Program Performance Measurement.** UNSE will collect data, maintain a progress tracking
 2 database and provide periodic reporting. UNSE with its implementation contractor will
 3 establish an integrated data collection system, conduct field verification of sample installations,
 4 and track saving values to ensure goals are being achieved.⁵¹

5 **e. Conclusions.**

6 (1) This program has only 38.4% (\$161,312/\$420,000) of its 2008 total programs costs going
 7 direct to LIW participants. The Company should reduce its costs, especially recurring costs.

8 (2) The projected percent participation in this program is way too small at 9% in 2008
 9 increasing to 10% in 2012. It is my understanding, 42% of all new homes being built in
 10 Nevada are DOE Energy Star Homes[®]. If 42% of all homes in 2012 were ESH homes or
 11 2,560 homes instead of 623 homes, then, linearly extrapolating, then in 2012 could be:

- 12 • Peak Demand reduction increases from 265 kW to 2,593 kW
- 13 • Annual savings in Company's capital peaker plant cost of \$276,500 increases to
 14 \$2,705,550 in avoided peaker plant costs a year.
- 15 • Annual reduction of peak demand increased from 726,430 kWh to 7,108,800 kWh and
 16 432,700 Therms were saved.
- 17 • The Total reduction of green house gas (GHG), other air pollutants and saved water
 18 between 2008 and 2012 would be estimated to be:

GHG	Saved in Pounds	GHG	Saved in Pounds	Others	Saved
CO2	50,568,000	SO2	24,440	Water	XXX gallons
NOx	78,378	Ozone	XXX	Mercury	XXX oz

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 23 (3) A sample Partner Agreement and/or the Energy Star Partner Agreement⁵² between UNSE
 24 and the builder should be written in "plain" English and in this section.

25 **f. Recommendations.** It is recommended that:

26 (1) The Company should reduce its high costs, especially recurring costs, and improve its
 27 return to customers to 45% in 2009, 50% in 2010, 55% in 2011, and 60% in 2012.⁵³

28 (2) That annual goals increase from 9% in 2008 and increase annually to 42% or higher in
 29 2012, with new data presented in the UNSE Rebuttal reflecting this change.

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 32 ⁵⁰ UNSE DSM Programs (13 June 2007). It is noted that ACC Staff's First Draft of Proposed DSM Rule, Exhibit
 33 1 Draft Demand-Side Management Rules, R14-2-1709.B, which states "The Commission shall determine
 34 whether a utility may be allowed to recover lost net revenue." Also the utility expenses may decrease in this
 DSM program.

35 ⁵¹ *Ibid.*, after Table 2 (pages unnumbered)

⁵² UNSE DSM Programs (13 June 2007), Attachment 4, Appendix 4 (pages unnumbered)

⁵³ *Ibid.*, Table 6, 2008 to 2012 budget (pages unnumbered),

1 (3) Determine the annual costs of this program, then divide by the total of a weighted number
2 of monthly customers, so this program's DSM Adjustor can be calculated.

3
4 **3.6 Residential HVAC DSM Program (EE).**

5 **a. Scope.** This program will promote quality installation practices and high-efficiency air
6 conditioning equipment that meets or exceeds a 14 to 16 SEER ratings.⁵⁴ A financial incentive
7 will be provided to the residential ratepayers. UNSE will publicize this program under the
8 Education and Outreach program in 3.2 above. UNSE will monitor for "lost" revenues.

9 The benefits of this program include:

- 10 (1) The annual peak demand reduction is 235 kW in 2008 and increases to 265 kW in 2012.⁵⁵
11 (2) This peak reduction is equivalent to a savings \$164,500 (235x700) in capital costs for new
12 "peaker" generation facilities saving the Company future capital costs using \$700/kW for a
13 gas turbine, or much higher costs for coal or nuclear power plants in 2008 and \$185,500
14 (265x700) in 2012.⁵⁶
15 (3) A total annual reduction of 622,268 kWh energy savings in reduced demand and XXX
16 therms in 2008, increasing to 700,368 kWh energy savings and a total of XXXX Therms in
17 2012.⁵⁷
18 (4) The annual implementation cost per air conditioning or heat pump system is \$402.14
19 (\$300,000/746 systems) for a total of 746 systems per year. Customer's incentives
20 account for 57.6% of the program budget.⁵⁸
21 (5) The total reduction of green house gas (GHG), other air pollutants and saved water
22 between 2008 and 2012 is estimated to be:

23

GHG	Saved in Pounds	GHG	Saved in Pounds	Others	Saved
CO2	5,371,825	SO2	2,577	Water	XXX gallons
NOx	8,325	Ozone	XXX	Mercury	XXX oz

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26 (6) At a month DSM Adjustor surcharge of \$XX.XX per kWh per residential customer for this
27 program, or on an average bill of \$X.XX for monthly usage of XXXX kWh.

28 (7) This program has a society test benefit effectiveness ratio of 1.49.⁵⁹

29 **b. Reference.** UNSE DSM Programs (13 June 2007) Attachment 5, "Residential HVAC Retrofit
30 Programs"

31
32 ⁵⁴ UNSE DSM Programs (13 June 2007), Attachment 5, Residential HVAC Retrofit Program at 3.

33 ⁵⁵ *Ibid.*, Table 5 at 7.

34 ⁵⁶ *Ibid.*

35 ⁵⁷ *Ibid.*

⁵⁸ *Ibid.* at 6.

⁵⁹ UNSE DSM Programs (13 June 2007), Attachment 5, Tables 3 and 4 at 6 and Appendix 2, Program Costs at 10 to 13.

1 **c. Program Requirements.** UNSE will use various media to reach residential customers UNSE
 2 employees will manage this program and provide overall management, marketing, planning,
 3 and customer coordination and contractor participation. UNSE will establish partnerships with
 4 HVAC training professions, contractors, and Arizona Energy Office. Both air conditioners and
 5 heat pumps will receive rebates at 14 SEER of \$50/ton, 15 SEER at \$75/ton, and 16 and
 6 above SEER 16 at \$100/ton.

7 **d. Program Performance Measurement.** UNSE will collect data, maintain a progress tracking
 8 database and provide periodic reporting. UNSE with its implementation contractor will
 9 establish an integrated data collection system, conduct field verification of sample installations,
 10 and track saving values to ensure goals are being achieved.⁶⁰

11 **e. Conclusions.**

12 (1) Since UNSE is managing this program, the Budget shows \$12,000 as "Subcontracted
 13 Marketing Expense" and many other expenses summarized in Table below.

14
 15 **Table 4 – Subcontractor and other Expenses that are not Appropriate.**

Budget Items for Subcontractors (ONLY)	Budget
Admin, Managerial and Clerical Labor Subcontractor Labor	\$9963.00
Admin, Travel & Direct Expenses Subcontractor Travel, Conferences	\$812.00
Overhead (General & Administrative, - Labor and Materials Subcontractor :Labor – Regulatory Reporting	\$567.00
Marketing/Advertising/Outreach Internal Marketing Expense (Note 1)	\$12,000.00
Marketing/Advertising/Outreach Subcontractor Marketing Expense	\$4800.00
Hardware and Materials – Installation and Other DI Activity Subcontractor – Literature, Education, Energy Mgt tools, etc.	\$4840.00
Rebate Processing and Inspection – Labor and Materials Subcontractor Labor – Rebate Applications, Field, processing	\$7680.00
EM&V Labor and Materials Subcontractor Labor – EM&V	\$7,290.00
TOTAL Subcontractor	\$35,952.00
TOTAL Internal Marketing Expenses	\$12,000.00

28 Note 1: All Education and Outreach Activities are included the Education and Outreach DSM
 29 Program, thus these expenses are not appropriate.
 30

31 (2) In Appendix 3 of this plan,⁶¹ the following are potential errors:
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 33
 34

35 ⁶⁰ *Ibid.* at 5.

⁶¹ *Ibid.*, Appendix 3, Measure Level Energy Savings and Benefit/Cost Analysis, at 15 and 17.

- 1 (a). In both the effectiveness charts, when an air conditioner had a 17 or 18 SEER, show
2 no incentives while the program states that incentives are for 16 and greater SEER.⁶²
3 For each SEER rating increase of 1.0, energy requirements decrease by 10%.
4 (b) The Benefit/Cost chart for air conditioning systems with heat pumps should provide
5 savings in Therms.
6 (c) The line loss is 10.69% which does not agree with the line loss from the test year.
7 (d) The rates for electricity, peak and non-peak, do not agree with the proposed rates.

8 **f. Recommendations.**

- 9 (1) That \$35,952 of subcontractor expenses and \$12,000 of internal marketing expenses for a
10 total of \$47,952, should be deleted from this Program's Budget since (a) the program
11 does not call for a subcontractor; (b) marketing expenses are in the Education and
12 Outreach DSM Program; and (c) other company recurring expenses should be reduced.
13 (2) That the charts in Appendix 3 include 17 SEER and 18 SEER incentives and that for heat
14 pumps, savings in therms should be included and line loss and electricity and natural gas
15 rates reflect what is proposed by UNSE which use the same TOU peak, shoulder, and
16 non-peak rate schedules when computing annual values.
17 (3) Incentives should continue to increase as SEER ratings increase, with the Company
18 deciding if the rebate should be accelerating, remain at same incremental change, or
19 decelerate.
20 (4) "The Commission shall determine whether a utility may be allowed to recover lost net
21 revenue."⁶³ The Commission has not made this decision for this program.

22 **3.7 Shade Tree DSM Program (EC).**

- 23 **a. Scope.** This energy conservation (EC) program promotes conservation and environmental
24 benefits associated planting low-water usage trees. These shade trees are to be located within
25 15-feet on the south, west and east sides of homes. This also is a UNSE "community service"
26 program. The incentive will be a rebate by UNSE of \$30.00 for two trees of 15 gallons or larger
27 sizes per ratepayer, once a year. USNE does not have an assessment of the impact of
28 reducing loads or energy savings potential through shading from trees. The ratepayer will be
29 required to plant and water the tree(s).⁶⁴
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34 ⁶² *Ibid.*, Table 1 at 4.

35 ⁶³ ACC Staff's First Draft of Proposed DSM Rule, Exhibit 1 Draft Demand-Side Management Rules, R14-2-1709.B.

⁶⁴ UNSE DSM Programs (13 June 2007), Attachment 6, Shade Tree Program at 1-2.

1 The benefits of this program include:⁶⁵

- 2 (1) The annual peak demand reduction is significantly delayed as the trees mature, zero.⁶⁶
3 (2) There is no estimate of peak reduction.
4 (3) A total annual reduction is 140,280 kWh in reduced demand and XXX Therms in 2008 and
5 remaining level through 2012.
6 (4) The annual rebates, at \$65.00 per tree (\$65,000/1000 trees) is constant from 2008 to 2012.
7 (5) The TOTAL reduction of green house gas (GHG), other air pollutants and saved water,
8 from 2008 to 2012, based on "historic program performance."⁶⁷

9

GHG	Saved in Pounds	GHG	Saved in Pounds	Others	Saved
CO2	1,140,475	SO2	547	Water	XXX gallons
NOx	1,768	Ozone	XXX	Mercury	XXX oz

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12 (6) At a month DSM Adjustor surcharge of \$XX.XX per kWh per residential customer for this
13 program, or an average bill of \$X.XX for monthly usage of XXXX kWh.

14 (7) This program has a societal test benefit effectiveness ration of 1.41

15 **b. Reference.** (1) USNE DSM Programs (13 June 2007) Attachment 6; (2) Gregory McPearson
16 and James R. Simpson, *Desert Southwest Community Tree Program*, 2004.

17 **c. Program Requirements.** USNE will provide media coverage in its Education and Outreach
18 Program at 3.2. Each ratepayer receives a cash incentive of \$30.00 a tree, to \$60.00 a year,
19 from either a participating retailer or directly from UNSE. It is estimated that 1,000 trees will be
20 planted annually, with a 30% attrition rate. Only Palo Verde and Mesquite trees are permitted

21 **d. Program Performance Measurement.** There are none. The proposed program has a
22 repeated and not relevant section on Monitoring and Evaluation. It is not expected that UNSE
23 field personnel will check customer's yards to verify UNSE "shade trees".⁶⁸

24 **e. Conclusions.**

- 25 (1) Trees consume water and lose water by transpiration to the atmosphere. Mesquite trees
26 were imported by cattle to Santa Cruz Valley in the 1890s and are very hard to kill or
27 remove as their roots grow to about 35- to 40-feet removing all water from the soil The
28 ADWR Santa Cruz Active Management Area (SCAMA) Ground Water Users Advisory
29 Council (GUAC) has explored ways to remove the tens of thousands of unwanted Mesquite
30 as a way to sustain water resources without success. I attend the monthly GUAC meetings,
31 probably the group with most significant impact in this county, as 100-year assured water
32

33 ⁶⁵ Based on the recommendations below, the existing benefits will change, thus it is recommended that all the
34 XXX's in this subparagraph be completed in the applicant's Rebuttal.

⁶⁶ UNSE DSM Programs (13 June 2007), Attachment 6, at 5.

⁶⁷ *Ibid.* Table 4 at 5. This performance might be for mature trees.

⁶⁸ *Ibid.* at 3

1 supply (AWS) certifications depend on maintaining sustainability in SCAMA for building
2 permits. SCAMA, which corresponds to the UNSE service area, presently has about 50,000
3 persons. The Santa Cruz County Comprehensive Plan and ADWR estimate that this valley
4 can sustain about 71,000⁶⁹, after which no building permits with 100-year AWS will be
5 granted. Only about 30% additional population growth remains in this county. This county
6 has only water source, the Santa Cruz River, mostly flowing underground. Last week, at the
7 monthly SCAMA GUAC meeting, the Assistant State Drought Director from ADWR, in a
8 drought update briefing for SCAMA, stated the drought in Santa Cruz County is expected to
9 last at least eight more years due to ongoing Pacific Ocean currents involving El Niño, La
10 Niña and the California Current upwelling pattern changes.

11 (2) Mesquite and Palo Verde trees are not noted for producing much shade in its early years,
12 requires pruning of dead branches, and in dry and hot weather sheds to conserve water.

13 (3) Our local fire district has been emphasizing the University of Arizona FIREWISE program
14 for most residents. Significant to extreme fire danger are common during certain seasons.
15 All homes owners were requested to remove all vegetation within 30-feet of all structures.
16 Porches, awnings, and sun-shade boxes all reduce heat entering the exposed walls and
17 widows, safer than shade trees.

18 (4) The comments about Santa Cruz County appear applicable in Mohave County, where
19 recent reports indicate that ADWR is extremely concerned that 2/3rds of the proposed
20 housing northwest of Kingman that may not have sustainable water resources based on
21 supply versus demand in that area.

22 **f. Recommendations.**

23 (1) Based on these conclusions, this program is **NOT** recommended as water dominates other
24 environmental issues in both counties, the overhead costs are too high, which results in each
25 tree costing ratepayers \$65 for a \$30 rebate, and trees with 30 feet is contrary to FIREWISE
26 practices. This appears more as UNS "community relations" program and should be funded by
27 shareholders, not by ratepayers. The Societal Benefits appear for fully grown trees and not
28 appear relevant to the 2008-2012 period of this program.

29 **3.8 Commercial Facilities Efficiency DSM Program (EE).**

30 **Scope.** This energy efficiency program is targeted to any small, non-residential
31 commercial business with incentives to reduce payback to one year or less and total loads of
32 less than 100 kW. The objectives of this program are to encourage small business customers
33 to install EE measures in existing facilities. This program is designed to (1) encourage
34

35 ⁶⁹ Santa Cruz County Comprehensive Plan, 2004, Water Resources Element at 64.

1 installation of EE lighting equipment and controls, HVAC, and refrigeration systems; (2)
 2 encourage contractors to promote this program and provide turn-key installation services; (3)
 3 Overcome market barriers to reduce first costs, increase awareness and EE performance
 4 uncertainty; (4) Assure a clear participation and implementation processes.⁷⁰ Customer
 5 education and contractor training are included, see 3.2. UNSE will monitor "avoided costs".⁷¹

6 The incentives are to reduce between 45% and 85% of the cost of a selected group of
 7 "retrofit and replace-in-demand" (ROB) EE measures in existing or new facilities. The annual
 8 incentive cap of \$10,000 applies to all customers. The EE measures include high-efficiency
 9 lighting upgrades, high-efficiency HVAC equipment, lighting controls, programmable
 10 thermostats, and selected refrigeration measures as shown in Table 5:

11 **Table 5 – Commercial Facilities Efficiency Measures and Associated Rebates.**⁷²

LIGHTING MEASURES	
De-Lamping and Replace T12 Systems & Magnetic Ballasts with T8 Systems and Electronic Ballasts	\$25 to \$45 per fixture
Energy Efficient Integral Compact Fluorescent Lighting (screw-in CFL)	\$7 to \$10 per lamp
Replace Incandescent and CFL Exit Signs with LED lighting	\$60 per sign
Install Occupancy Sensor controls on Lighting Fixtures	\$65 per system
HVAC MEASURES	
Replace standard thermostats with Programmable set-back Thermostats	\$100 per thermostat
High-Efficiency Packaged Air conditioners and Heat Pumps (<65,000 BTU)	\$75 to \$350 depending on size and SEER rating
REFRIGERATION MEASURES	
Integrated Refrigeration Case Control and Motor Retrofit	Up to \$6,200 per site
Refrigerated Case Evaporator Fan Controls	Up to \$2,500 per site
Install Anti-sweat Heater Controls	Up to \$1,300 per site
Evaporator Fan Motor Retrofit with high efficiency motors	\$125 per PSC Motor \$150 per EC motor

24 The benefits of this program include:⁷³

- 25 (1) An annual peak demand reduction of 428 kW in 2008; increases to 488 kW in 2012.⁷⁴
- 26 (2) This peak reduction equals capital savings of \$299,600 (428x700) in capital peaker
 27 generation faculties to save the Company capital costs at \$700/kw for a gas turbine in
 28 2008 and \$314,600 (488x700) in 2012.⁷⁵
- 29 (3) A total annual reduction of 2,219,100 kWhs energy saving in reduced demand and XXX
 30 Therms in 2008, increasing to 2,533,296 kWh energy with XXXX Therms in 2012.⁷⁶

32 ⁷⁰ UNSE DSM Programs (13 June 2007), Attachment 7 at 1.

33 ⁷¹ *Ibid.* at 1.

33 ⁷² *Ibid.* at 4 and Table 1 at 5.

34 ⁷³ Based on the recommendations below, the existing benefits will change, thus it is recommended that all the
 35 XXX's in this subparagraph be completed in the applicant's Rebuttal.

35 ⁷⁴ *Ibid.*, Table 3 at 7.

⁷⁵ *Ibid.*

1 (4) The annual implementation cost of \$17,021 per \$10k participant (\$400,000/23.5) in 2008
2 decreasing to \$16,767 per \$10k customer (\$450,204/26.85). Assuming a \$10,000 rebate
3 limits this to 23.5 participants in 2008 and 26.85 in 2012. The Cost/Benefit ratio is 1.7
4 decreasing to 1.68, both very high.

5 (5) The TOTAL reduction of green house gas (GHG), other air pollutants and saved water
6 from 2008 to 2012 is estimated to be:

GHG	Saved in Pounds	GHG	Saved in Pounds	Others	Saved
CO2	19,542,947	SO2	9,37	Water	XXX gallons
NOx	30,288	Ozone	XXX	Mercury	XXX oz

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10 (6) At a month DSM Adjustor surcharge of \$XX.XX per kWh per residential customer for this
11 program, or on an average bill of \$X.XX for monthly usage of XXXX kWh.

12 (7) This program has a society test benefit effectiveness ratio of 2.72.⁷⁷

13 **b. References.** (1) UNSE DSM Programs (13 June 2007), Attachment 7; (2) California DEER
14 database; (3) a detailed southwest desert climate model; (4) industry data and resources, such
15 as CEE and ASHRAE; (5) manufacturer's data; (5) other regional data.⁷⁸

16 **c. Program Requirements.** Small businesses with less than 100kW loads, submit proposals by
17 mail or on-line to UNSE to evaluate. Proposals are evaluated based on Total Resource Cost
18 (TRC) with customized measures from Table 5 so each approved project meets the TRC test.⁷⁹
19 The program will offer consumer and contractor education and information to make decisions to
20 improve EE of lighting, HVAC, and refrigeration systems. Contractors will be qualified Arizona
21 Registered Contractors and be required to complete a UNSE sponsored orientation and pre-
22 installation training qualification program. Incentives paid to contractors may offset up to 100%
23 of a project's installation costs. USNE will provide an in-house program manager to lead this
24 program in all areas including administration, proposal and incentive processing, monitoring
25 installing contractors, track and report program status, manage quality control and the delivery
26 process. UNSE will outreach to contractors and the owners of target commercial facilities
27 primarily on the web, and provide education and training as described in 3.2 for this program.
28 Installing contractors will provide turn-key systems to UNSE's ratepayers.

29 **d. Program Performance Measurement.** UNSE will collect data, maintain a progress tracking
30 database and provide periodic reporting. UNSE with its implementation contractor will establish
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Ibid.

⁷⁷

UNSE DSM Programs (13 June 2007), Attachment 7, Table 5, Benefit-cost analysis results at 8.

⁷⁸

Ibid., at 3.

⁷⁹

Ibid., at 1.

1 an integrated data collection system, conduct field verification of sample installations, and track
2 saving values to ensure goals are being achieved.⁸⁰

3 **e. Conclusions.**

- 4 (1) This program has the highest payback of the proposed UNSE DSM programs; however,
5 assuming that all are \$10k participants, only 28.5 customers can participate. Additional
6 benefactors should be included by having the Company lower the present high
7 administrative and marketing costs. UNSE should work with promotional and installing
8 contractors so they become "EE believers" who see the benefits to themselves and their
9 clients. Once that happens, there should be adequate proposals to maximize all funds in
10 the budget and UNSE "marketing" efforts should be minimal.
- 11 (2) Many overhead costs should decrease after this program implementation as most of its
12 features appear designed to be self-actuating to lower labor costs in year's two to five.
- 13 (3) A sample (1) Commercial Facilities Efficiency Proposal (format as a minimum) (2)
14 Installing Contractor Agreement with UNSE; and (3) On-line Project Completion Report
15 formats, instructions, and form-fill-ins should be a new Appendix to this Attachment.⁸¹
- 16 (4) The Proposal "evaluation" process is briefly discussed and important to all participants.

17 **f. Recommendations.** It is recommended

- 18 (1) That UNSE treat the contractors as team players, partners so their customers, UNSE
19 ratepayers easily see that rapid payback with significantly lowers cost. Even a low-interest
20 USNE "loan" or payment plan could also incentivize more program participation.
- 21 (2) That the proposal evaluation process should be objective, tied to realistic and measurable
22 performance objectives, DSM goals, in an open environment so that proposal selection
23 validates the need to meet this program's requirements so that each proposal evaluation
24 will be without protest.
- 25 (3) That "the Commission shall determine whether a utility may be allowed to recover lost net
26 revenue."⁸² The Commission has not yet determined if it will support this program.
- 27 (4) That more EE elements can be added to this program, so repeat participants still improve
28 electricity efficiency in their companies so that new contractor trades can participate.
- 29 (5) That this program be approved.

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34 ⁸⁰ *Ibid.*, at 9.

35 ⁸¹ *Ibid.*, Appendix 3

⁸² ACC Staff's First Draft of Proposed DSM Rule, Exhibit 1 Draft Demand-Side Management Rules, R14-2-1709.B.

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Part IV – ISSUES

Administrative Rules and Regulations, Changes in “Connect” Fees, Billing Schedules, Predatory Loan/Check Cashing Facilities as Billing Agents, Revised Billing Statement and R&R Publication

4.1 This is a Group of Related Issues.

This group involves several inter-related issues that have been grouped as one issue. Each is discussed individually in the following sections.

In general, these are identical issues that remain open in the parallel UNS Gas Rate Case where Direct, Rebuttal, Surrebuttal, Rejoinder, and Summary Testimonies have been filed, eight-days of oral testimonial hearing held, and Initial and Briefs filed by the same parties as in this case plus an intervenor from the Arizona Community Action Association (ACAA), who represented low-income programs in three northern Arizona counties excluding the UNSE Electric service areas. The Administrative Law Judge was also different than in this case.

In Part IV, each of these issues is briefly presented along with differences between the UNS Gas and UNS Electric cases, mostly, administrative, such as different paragraph numbers in the proposed Rules and Regulations.

For reference, in the UNS Gas Magruder Reply Brief found in Exhibit B, all of these issues are presented with final recommendations.

Issues. These issues are identical to the same issues in Exhibit B, section 2.6. The UNS Gas filings and transcripts have not been submitted in this UNS Electric case, ACC Docket Nos. G-04204A-06-9463 (the UNS Gas Rate Case) nor are they essential to understand the issues and associated recommendations.

The following changes are generic throughout Exhibit B.

- (1) Change Gas to Electric
- (2) All references and discussions about “changes in ‘connect’ Fees issue” or “additional connect charges” do NOT apply to UNS Electric and should not be considered.
- (3) Footnotes have been renumbered to agree with this filing.
- (4) A prefix “B” has been added to all Tables.

4.2 Administrative Rules and Regulations.

In general, all of the issues in Part IV pertain to changes in the Company’s Rules and Regulations (R&R).

1 **4.3 Changes in "Connect" Fees.**

2 This is not an issue in these proceedings and any such reference should not be considered.

3
4 **4.4 Billing Schedule.**

5 See Exhibit B, which provides the basis, discussion and recommendations to changes
6 proposed to the billing schedule. No changes in testimony or recommendations from that in
7 Exhibit B are necessary. The referenced R&R sections in the UNS Gas R&R Section 10.C
8 become Section 11.C in the proposed UNS Electric R&R.⁸³ References to UNS Gas R&R
9 Section 11.E becomes Section 12.D in UNS Electric R&Rs.

10 **4.5 Predatory Loan/Check Cashing Facilities as Billing Agents.**

11 See Exhibit B, which provides the basis, discussion and recommendations to the proposed
12 changes in billing statements which refer UNSE ratepayers to such facilities who have been
13 hired at UNSE billing agents. It is not appropriate to use possible predatory loan/check cashing
14 facilities as UNSE billing agents for lower income ratepayers to pay their bills. No changes in
15 testimony or recommendations from that in Exhibit B are necessary.

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17 **4.6 Revised Billing Statement.**

18 See Exhibit B, which provides the basis, discussion and recommendations to changes
19 proposed to the billing statement sent monthly to UNSE ratepayers. No changes in testimony
20 or recommendations from that in Exhibit B are necessary. There were fourteen
21 recommendations to revise the new billing statement presented in the UNS Gas Rate Case.
22 Since the billing statements for UNSG and UNSE are very similar, these same detailed
23 recommendations apply. These details will be presented as a Magruder Exhibit during oral
24 testimony.

25 **4.7 R&R Publication.**

26 See Exhibit B, which provides the basis, discussion and recommendations to publish the ACC-
27 approved UNSE Rules and Recommendations (R&R). No changes in testimony or
28 recommendations from that in Exhibit B are necessary. Only Table B-3 in Exhibit B has been
29 changed to reflect the UNS Electric R&R Section Titles.
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35 ⁸³ Direct Testimony of Thomas J. Ferry on Behalf of UNS Electric, Inc., of 15 December 2006, Exhibit TJF-1, at 82.

Part V – ISSUE

Costs to Improve Electricity Reliability in the Santa Cruz Service Area

(Testimony on this issue needs additional information from USNE)

- 5.1 Reliability Issues in the Santa Cruz Service Area.**
- 5.2 Improvements Initiated by UNSE in the Santa Cruz Service Area.**
- 5.3 Cost of the USNE Reliability Changes.**
- 5.4 Estimated Cost of proposed UNSE Changes**
- 5.5 Conclusions**
- 5.6 Recommendations.**

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Part V – ISSUE

CARES and CARES-M Tariffs

(Testimony on this issue needs additional information from USNE)

- 6.1 Concerns about CARES and CARES-M Programs.
- 6.2 CARES Participation.
- 6.3 CARES-M Participation.
- 6.4 Recommendations to Improve the CARES Tariff.
- 6.5 Recommendations to Improve the CARES-M Tariff.

1 **EXHIBIT A**

2
3 **RESUME OF MARSHALL MAGRUDER**

4 **Education**

5 MS in Systems Management, University of Southern California, Los Angeles, California (1981)
6 Majors in Managing Research and Development and in Human Factors (grade A in every course)
7 MS in Physical Oceanography, Naval Postgraduate School, Monterey, California (1970)
8 Honor roll 4 times (two years, 5 terms a year)
9 BS, US Naval Academy, Annapolis, Maryland (1962)
10 Special courses in Operational Analysis and History of Russian Military Tactics

11 **Experience**

12 Over 25 years as Senior Systems Engineer with and an associated contractor, consultant to Raytheon-
13 Hughes in systems engineering, training and naval systems, simulation and modeling in C4I; with over
14 20 years of service with the US Navy, a total over 40 years experience in this field

- 15 • **Large-system development** at all levels
16 **From** pursuit, analysis, winning strategy, Request for Proposal evaluation, proposal management,
17 system requirements analysis, architectures, specifications, design synthesis, trade-off studies,
18 requirements allocation tracking,
19 **To** system, level test planning, deployment, implementation, through sign-off, and
20 **For** technical systems of all complexities.
- 21 • **Developed** Antisubmarine Warfare (ASW), Electronic Warfare (EW), Command, Control,
22 Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) operational
23 concepts, procedures, and tactical employment.
- 24 • **Used, operated, and planned** Navy, Army, Air Force, Coast Guard, Joint systems, world-wide.
- 25 • **Coordinated multi-platform employment** from sensor to unit to Battle Force to Theater levels.
- 26 • **Qualified systems engineer/manager** for trainers, artillery, Command and Control (C2),
27 countermeasures, for any platform.
- 28 • **Specialties:** environmental analysis, documentation, sensor/weapon predictions, C4ISR,
29 Electromagnetic and Emission Control decision criteria.
- 30 • **Battle Force/Group Tactical Action Officer** (TAO) on 8 aircraft carriers, TAO Instructor for 4 years,
31 20 months combat experience.

32 **Recent Positions**

33 **at ImagineCBT Inc., ISIS Inc., Raytheon and Hughes Aircraft Company**

34 **C4I Architect and C4I Support Plan Lead** for the Carrier for the 21st Century (CVNX) Task Order.

- 35 • Completed *CVX C4I Support Plan, v1.0*, Joint Operational Architecture development for Joint and
36 Naval staff space allocations for CVX (1999) and Joint Command and Control ship (2002).
- 37 • Drafted *CVN 77 Electronics System Integrator Statement of Work (SOW)* for WBS Group 400 tasks
38 and IPTs (1999), *Integrated Management Plan*; Royal Navy CVF WBS proposal (2002)

39 **Lead Systems Engineer, Operations Analyst and Site Survey Leader** for Saudi Arabian Minister of
40 Defense National Operational Command Centers and C4I System (completed August 1997).

- 1 • Completed *System Specification, System Description Document, Site Survey, Interface*
2 *Requirements Documents*

3 **Proposal Technical Volume Manager** for the following **winning proposals**:

- 4 • Vessel Traffic Service 2000 system, US Coast Guard command center for surface surveillance using
5 radar, visual, communications links. (proposal evaluated A++, won Phase I, Phase II delayed then
6 restructured)
7 • Anti-submarine Warfare Team Trainer (Device 20A66), an integrated, multi-ship, submarine and
8 aircraft training system for Naval Task Groups. (\$56M contract, best technical, lowest cost)
9 • Electronic Warfare Coordination Module, an Intelligence/EW spectrum planning and management
10 system for Task Force Command Centers. (won Phase I, best technical)

11 **Assistant Program Manager for the Training Effectiveness Subsystem, Device 20A66**

- 12 • Performance Measurement Subsystem, observed real-time performance of operators, teams, multi-
13 ship and aircraft units during exercises and compared to the standard

14 **Senior Systems Engineer** responsible for writing **specifications** in following **proposals**:

- 15 • Fire Support Combined Arms Team Trainer (FSCATT) *System Specification*, a US Army artillery
16 multiple cannon and battery training system. (awarded \$118M contract, still under contract)
17 • Warfighter's Simulation 2000 (WARSIM 2000) *System Specification*, a US Army Force XXI Century
18 battalion to theater levels, and training system with actual C4I systems. (won Phase I)
19 • Tactical Combat Training System, *Exercise Execution Software Requirements Specification (SRS)* for
20 simulation and computer models to run real-time, driving sensors, weapons and links on 35 ships,
21 100 aircraft and submarines (won Phase I contract, wrote SRS in Phase 2 proposal)

22 **Detailed Descriptions of Experience**

23 The following are more information, arranged chronologically, with dates, duration, position title,
24 program name, followed by accomplishments, and then an overview of the project.

25 **April 2000 to present – ISIS, Inc., primarily as Senior Scientist, Information System Architect,**
26 **Systems Engineer, Training Systems Analyst and Requirements Analyst.**

27 **General Accounting Office (GAO) (May 2005 – June 2006)**, reviewed and prepared training
28 system development and professional engineering services (PES processes and job descriptions
29 for category 69 (training) proposal.

30 **Strategic Services and Support (April 2005-Sept. 2006)**, attended pre-solicitation conference for
31 the Army Communications-Electronics Command (CECOM), Ft. Monmouth, New Jersey, waiting
32 for formal request for a part of this \$19.25 billion program proposal.

33 **Department of Interior Management, Organization and Business Improvement Services**
34 **(MOBIS) and Professional Engineering Services (PES) proposal analysis (June 2005),**

35 prepared a detailed requirements and tasks analysis of the RFP) and proposal plan.

36 **Total Engineering Information Services (TEIS) (Feb. – March, 2005)**, participated as proposal
37 writer, pink and red team member with another company which is prime for an approximately \$12
38 million, multi-year, contract for the Army Information Systems Engineering Command, Ft.
39 Huachuca, Arizona. Prepared TEIS Risk Management Plan for prime contractor. Presently ISIS is
40 waiting for announcement of selected winners.

41 **Networthiness Certification (Jan. 2005 – Sept. 2006)**, prepared proposal for the Army Network
42 Command (NETCOM), awaiting RFP to respond for this several million dollar program involving
43 over 3,200 Army computer programs at all Army installations, worldwide. Prepared Quality Control
44 (QC) and Risk Management Plan.

45 **Cryptologic Support and Logistic Analysis (Oct. 2004 – Sept. 2006)**, prepared proposal for the
Army Communications-Electronics Command (CECOM), Ft. Huachuca, Arizona, waiting for formal
request for proposal.

1 **Information Warfare Training (2001 - 2005)**, USAF Small Innovative Business R&D (SBIR) Phase I
2 contract, to determine IW training requirements and measure performance in an intelligence,
3 wargaming system, awaiting possible award for development of an Information Warfare training
4 system for the USAF Information Warfare Aggressor Squadron.

5 **US Army Virtual Proving Ground (2001-2002)** - Performed *C4ISR Architecture Framework*
6 development, implementation and documentation using the DoD *C4ISR Architecture Framework*,
7 v2.0 and for Operational, Technical and Systems architecture products.

8 **Prepared C4ISR architecture framework proposals** for US South Command (USSOUTHCOM)
9 Command Center (2003), DoD Threat Reduction Agency (DTRA) Operational Command Center at
10 an Army Command, Virginia (2002), and Government Enterprise Architecture development for
11 Department of Health and Human Services Command Center (2002) programs.

12 **Raytheon Naval and Maritime Systems**, San Diego, California, for various programs, a consultant for
13 ImagineCBT, systems engineer.

14 **April 2001 to June 2005 – C4I Architect, Operations Analyst/Systems Engineer** for Minister of
15 Defence (UK) Future Aircraft Carrier (CVF) program, Raytheon Naval and Maritime Ship Systems,
16 San Diego.

17 Prepared for Raytheon Naval Ship & Integrated Systems (San Diego) proposals in April
18 and June 2003 with Statement of Work (SOW), Data Item Descriptions (DIDs) and CDRLs for
19 Architecture Assessments (Requirements, Testing) for ten functional mission areas, Global
20 Information Grid Evaluations in order for CVF to be interoperable with US forces, and Levels of
21 Information System Interoperability (LISI) using DoD LISI PAID (procedures, applications,
22 infrastructure, data) attributes to determine internal and external interoperability assessments

23 Prepared proposal and performed contract for Raytheon C3I Systems (Fullerton, CA) for the Joint
24 Command and Control Ship (JCC) *JCC Interoperability Study*, including report drafting and
25 preparation, conference presentations and making recommendations to JCC Program Office for
26 ensuring over 400 tactical, logistic, administrative, C4ISR applications work. (2001-02)

27 Prepared proposal and performed contract for Raytheon NAMS (San Diego) for *JCC Reconfiguration*
28 *Study* to determine requirements to most effectively manage command (C4ISR) onboard JCC.
29 (2001-02)

30 Provided architecture framework proposal inputs and evaluation for US Army Landwarrior III (Future
31 Combat System) for Raytheon C3I Systems (Plano Texas)

32 Provided C4ISR and engineering analysis and proposal preparation for LHA(R), JCC, CVF and other
33 Raytheon, San Diego ship programs (2000-03)

34 **October 2000 to present (inactive) – MBA Instructor, University of Phoenix**, for "Operations
35 Management for Total Quality" and "Managing R&D and Innovation Processes" courses.

Taught these courses in Nogales to Mexican maquiladores managers and in Tucson to Americans
managers.

Qualified to teach "Program Management" course.

Plan to qualify as FlexNet (online) Instructor, presently inactive instructor status.

36 **April 1998 to September 2000 – CVNX C4I Architect, C4I Support Plan Leader also Lead Systems**
37 **Engineer and Requirements Analyst** for CVN 77 and CVNX Programs, at Raytheon, San Diego,
38 CA

39 Performed C4I Support analysis to prepare requirements for the DoD C4I Support Plan. Led several
40 teams to understand the *DoD C4ISR Architecture Framework*, v2.0 and Operational, Technical
41 and Systems architecture products.

42 Managed team for CVN 77 combat requirements analysis 3 months to draft and submit plan to
43 NAVSEA (PMS-378) for two customer reviews.

44 Provided interface to combine CVNX and Joint Command and Control (JCCX) Ship architecture
45 development for NAVSEA (PMS-377), drafted task schedule but funding then not provided.

1 Proposed an approved Technical Instruction for "Reconfigurable Joint and Naval Staff Space
2 Allocations" in order to start the CVX/JCC *Operational Architecture and Mission Essential Tasks*
3 processes – completed early 1999. (3 of 14 proposed were approved for study)

4 Coordinated the AFCEA "Architecture Implementation Course" at the Raytheon San Diego site.
5 Created and drafted CVN 77 *Electronic Systems Integrator (ESI) Statement of Work (SOW)* for the
6 CVN 77 ESI role and RFP in Spring 1999.

7 Provided trade studies and options for performing this task for Newport News Shipbuilding.
8 Established a draft CVN 77/CVX "Total Ship Systems Engineering (TSSE) Plan for our team.
9 Implemented the Raytheon and Newport News Shipbuilding *Integrated Product and Process*
10 *Development* processes to structure IPTs, tasks, and work descriptions.

11 Provided interoperability inputs to UK Future Aircraft Carrier (CVF) Raytheon Qualification letter.
12 Participated in establishing teaming arrangements with SPAWAR Systems Center, San Diego.

13 The CVN 77 is the transition aircraft carrier from the *Nimitz* class, to be commissioned in FY 2008. Two
14 other evolutionary aircraft carriers, CVNX-1 and CVNX-2 are to be commissioned in FY 2013 and
15 FY 2018, respectively. The tenth CVNX is planned for disposal in FY 2111. Overall manning will be
16 reduced up to 1,740 personnel. Up to 12 Joint, Naval, Combined and Coalition staffs may embark
17 up to 1,000 augmentation personnel beyond the present capabilities. CVNX can embark a Joint
18 (Task) Force Commander with command and control systems for Operational-Theater and Tactical
19 (service) levels. The ESI role involves integration of all C4ISR equipment, internal and external
20 communications, navigation, sensors, fire control, weapons, and associated display and processing
21 systems.

22 **January 1998 to present – H&R Block, Tax Advisor Level 3**, seasonal tax preparer (annually,
23 January to April 15), AARP Tax Consulting for the Elderly (pro bono) tax preparer, IRS qualified,
24 over 450 hours of H&R Block classroom and CBT training courses.

25 **August 1997 to April 1998 – DD 21 Requirements IPT Lead, Systems Verification and Test IPT**
26 **Lead, and Initial Lead Systems Engineer** for the Hughes, then Raytheon, DD 21 Program for
27 NAVSEA, PMS-500 – assigned the CVX Reduced Manning (Automation) Study that led to CVX
28 C4I Support Plan after Raytheon sent "no bid" letter in April 1998.

29 Provided IPPD plans for all systems engineering functions, including workshop participation, for
30 subsystem to total Ship System levels.

31 Managed two Integrated Product Teams (IPTs), as additional DD 21 personnel were assigned.

32 Conducted a weekly VTC with IPTs, issued Agenda, Minutes, and led team meetings.

33 Attended Risk Management course and recommended Raytheon's Prophet™ risk management
34 software tool for DD 21 and other integration programs.

35 Provided the initial *DD 21 Total Ship Systems Engineering (TSSE) Plan*.

Coordinated systems engineering modeling and simulation planning.

The Future Surface Combatant of the 21st Century (SC-21) Program consisted of both destroyers and
cruisers, with the Land Attack Destroyer (DD 21) to be commissioned in FY2009 and an Air
Dominance Cruiser in FY2018. I participated in the program implementation and maintenance of
collaborative and synergy with both CVNX and SC-21 programs and the emergent JCC and USCG
Deep Water Programs. [SC 21 is DDGX Program]

June 1995 to August 1997 (26 months) – Operations Analyst and Site Survey Team Leader also
Naval Operations Analyst and Joint Training Analyst, C4I System for National Defense
Operations Center and Area Command Centers Definition Study - completed August 1997.

Performed pre-contract planning analysis for site survey from battalion to national level.

Managed budget for 3 months deployment for the 12 engineers in Saudi Arabia.

Conducted interviews and briefs with members of all joint Minister of Defense and Aviation (MODA)
staff and all armed forces, including schools and topographic commands.

1 Provided reports, program reviews and TGMIRs for survey and design efforts for the 2 years,
2 including the coordination of all Action Items and Program Management Review Minutes.
3 Created significant inputs to the *System Description Document*, *System Specification* as Lead
4 Systems Engineer, emphasized operational concepts including staffing and workstation operator
5 tasks; operations center and support facility layouts; specifications for a transportable operations
6 center (TOC); system-level communications interfaces including ATM, SATCOM, PTT and RF
7 communications; system hardware and software interfaces including JMCIS, TADIL-S and IDL;
8 operator training; selected over 100 formatted messages (using USMTF) for integration, and
9 overall system performance characteristics.

10 Drafted System Specification for Land Forces Operations Center, deemed excellent by customer.
11 Prepared *Site Survey Report* and participated in drafting the *Communications Interface*
12 *Requirements Document*, presented multiple customer briefs.

13 Only engineer to start and complete this contract (over \$10M), most of the others were replaced.
14 The MODA C4I System will provide 13 operations centers, nation-wide, to form a joint service, C4I
15 system, integrating the four services through 3 command echelons and, for the Land Force will
16 provide their digital command and control system through 4 echelons.

17 **1995 – Systems Engineer, for an AirHawk Concept of Operations.**

18 Drafted a preliminary "*Operations Concept Document (OCD) for the Air HAWK*" system for HMSC,
19 provided a systems approach to integrate the subsystems with the missile, for the Command and
20 Control Division, using the MIL-STD-498(B) DID as a guide.

21 AirHawk provides an air-launch system capability for the U.K. Tomahawk cruise missile.

22 **1995 (5 months) - Lead Systems Requirements Engineer, Warfighters' Simulation 2000 (WARSIM**
23 **2000), US Army training system.**

24 Performed system functional requirements analysis for command and control levels from battalion
25 through echelons above corps and Theater-levels
26 Responsible Engineer for the analysis and writing of the system specification for the entire system in
27 accordance with MIL-STD-498(B) (System Engineering). (Hughes won Phase I)
28 WARSIM 2000 C4I training system to stimulate all present and emerging Force XXI digital C4I
29 systems with operational data for entire staffs in their Tactical Operations Centers in the field, in
30 classrooms and at the War Colleges. WARSIM 2000 integrates with other joint systems through
31 protocol standardization and object-oriented design features.

32 **1994 – System Requirements Compliance Engineer, Theater Battle Management Core System**
33 **(TBMCS), US Air Force C4I system.**

34 Ensured compliance with the contract and requirements documents integrating different systems into
35 the TBMCS proposal, including the Global Command and Control System.

36 Drafted a compliance matrix with 200 pages in the Executive Volume to meet demanding RFP
37 compliance requirements (Proposal vs. IFPP vs. SOW vs. CDRL vs. WBS vs. CLIN vs. TRD).

38 TBMCS is the US Air Force Theater to squadron level C4I system. (Hughes lost)

39 **1994 (7 months) – Proposal Technical Volume Manager for the Vessel Tracking Services 2000**
40 **(VTS 2000), US Coast Guard C3 system.**

41 Led the technical and engineering proposal efforts to comply with the RFP and proposal requirements,
42 based on Hughes themes and proposal strategy decisions.

43 Managed systems, hardware, communications, software, and logistics engineers writing the responsive
44 proposal. (Ten corporate teams bid; Hughes won Phase I with two others including Raytheon,
45 Hughes performed Phase I, Congress delayed Phase II, program later restructured)

46 VTS interfaces radar, visual surveillance, environmental, and voice communications data with
47 differential Global Positioning System (dGPS) information from automated and human input to
48 enhance safety and commerce on waterways and for major port regions.

1
2 **1993-1994 (10 months) – Lead Systems Engineer, Fire Support Combined Arms Tactical Trainer (FSCATT), US Army training system.**

3 Team Leader for the requirements analysis, design, and system engineering and proposal efforts.
4 Drafted and led several pre-RFP System Requirements Reviews for the System Specification.
5 Developed a technique with Distributed Interactive Simulation (DIS) protocols whereby a thousand or
6 more cannons can perform exercises from multiple sites in same exercise.
7 FSCATT integrates artillery and fire control with a Forward Observer visual training system, provides
8 Fire Direction Center simulation and stimulation interfaces with Close Combat Team Trainer
9 (CCTT) M1 tank and M2 systems. (Hughes won \$118M program, still ongoing)

10
11 **1990-1991 (20 months) – Systems Requirements Engineer, Tactical Combat Training System (TCTS), US Navy C4I training system.**

12 Led the simulation and modeling, system requirements analysis for all real-time operations for the
13 proposal and Phase I development efforts. (Hughes won Phase I)
14 Wrote most of the *Exercise Execution CSCI SRS* for real-time system execution software for all
15 simulations and sensor, weapons and platform models (over 100).
16 TCTS provides a task group training data link for 100 aircraft, 24 ships and submarines, 6 ashore
17 installations and ranges, with real-time targets (to 780). TCTS uses participant "pods" with a data
18 link between platforms; stimulates platform sensors with the real-time targets; maintains data link
19 communications; collects data for feedback and rapid after action reviews. (Hughes team won
20 Phase I, Raytheon Phase II)

21 **1991 - Human Factors SE for Land Warrior 2000 proposal, US Army infantryman C4I system.**

22 Human Factor Engineer for proposal effort for the helmet display overload analysis with computer text
23 and graphic display resolution. Left to lead FSCATT Systems Engineering and Proposal teams.
24 Land Warrior 2000 system provides infantrymen with an integrated C4I System for an infantry brigade,
25 with computer-driven displays, messages, GPS, and other C2 features. (Hughes won)

26
27 **1988-1991 (4 years) – Assistant Program Manager for the Training Effectiveness Subsystem, Device 20A66.**

28 Created Performance Measurement Subsystem, used subcontractor to provide analysis,
29 documentation, and design details.
30 Managed subcontract (\$1.2M), conducted subcontractor reviews, and wrote SOWs, evaluated
31 products and a subcontractor.
32 The Performance Measurement Subsystem determines operational performance (real time) for trainees
33 from Admiral to sensor operators and for ship teams, multi-ship and tactical units.

34
35 **1988-1991 (4 years) – Senior Systems Engineer, Device 20A66.**

36 Lead Systems Engineer, provided significant inputs for models, simulations, communication data link
37 interfaces, user displays, and I/O; consultant to software team as ASW expert.
38 Designed to real-time Links 4A/11/16 with ships in port and ships/aircraft at sea.
39 The Device 20A66 trains a Battle Group Commander in a Task Force Command Center (TFCC), staff
40 and subordinate staffs (in 20 ships and submarines and 15 aircraft in 35 mockups using 186
41 different workstations with 61 large screen displays) to use data links, communications, and good
42 decision making practices.

43
44 **1986-1988 (1.5 years) – Proposal Technical Volume Manager, Device 20A66.**

45 Evaluated Draft-RFP and System Specification, provided 229 change pages, and was acknowledged to
46 be most significant pre-proposal action by any bidding contractor.
47 Led pre-proposal, technical design and development effort as the only engineer for 1 year.

1 Led, as Technical Volume Manager, team of systems, simulation, hardware, courseware, facility,
2 logistics and software engineers in the synthesis and drafting of the 500-page technical volume,
3 with final technical volume cost less than B&P estimate.

4 After proposal submittal, replied to questions, gave briefs. (Hughes won, beat 2 incumbents)

5 **1987-1988 (6 months) – Proposal Manager, California Law Enforcement Driver Trainer System**

6 Led pre-proposal and proposal team to develop a design for high-technology driver trainer systems for
7 the Peace Officers and Safety Training (POST) Commission. (Hughes won)

8 Participated during contract, as systems engineer in-charge of design, to verify the POST training
9 objective(s), standard(s) and criteria would be met for the drivers of the system.

10 **1987 (4 months) – Lead Engineer, Advanced Fuels Auxiliaries Test System for USAF**

11 Provided initial engineering requirements analysis leading to joint venture with Allison Gas Turbines to
12 bid this major USAF test system.

13 Drafted initial System/Subsystem Design Document, the basis for design.

14 Hughes bid, after I left project; however, USAF declined to award contract.

15 **1986-1987 (3 months) – Proposal Coordinator, USAF LANTIRN training system.**

16 Led proposal compliance review for real-time video and infrared technical requirements using the
17 Hughes RealScene™ 3-dimensional (voxel-based), interactive system instead of the Hughes
18 (formerly Honeywell)-developed, GBU-15 training system.

19 LANTIRN trainer provides real-time displays of video and IR images to cockpit and weapons systems
20 for F-15, F-16 flight simulators and the AGM-130 missile. (Hughes no-bid)

21 **1985-1986 (9 months) – Senior System Engineer for the Electronic Warfare Coordination Module
22 (EWCM) program with responsibility for the environmental effects design.**

23 Led technical proposal effort, coordinated proposal outline, reviewed storyboards and topics,
24 determined compliance, edited technical volume, and synchronized with other volumes.

25 Responsible engineer for atmospheric and acoustic effects on propagation and degradation from
26 countermeasures, provided customer briefs and proposal topics.

27 EWCM provides full spectrum management capabilities for the Electronic Warfare Commander to
28 coordinate operational and intelligence EW information and databases. (Hughes won Phase I, lost
29 Phase II)

30 **1982-1985 (2.5 years) – Systems Engineer for the training subsystem, Device 14A12 ASW
31 Tactical Ship Training System.**

32 Led technical proposal effort for the Performance Measurement and Monitoring training subsystem,
33 sonar modeling and simulation, operator displays, fire control, data links, and sensor, weapon and
34 platform modeling.

35 Designed PMM subsystem, pushing the state of the art, later implemented in Device 20A66.
All ASW ships and ASW aircraft were simulated in a single-ship, multi-dimensional (anti-air, anti-
surface, anti-submarine) environment, as a C2 and sensor operator training system.

Papers

Presented papers to the Industry/Inter-Service Training Systems Conferences (I/ITSC):

“Design Concepts for a Performance Measurement System” [nominated for best paper top 5 of 105]

“A Performance Measurement System Design”, based on Device 20A66 results.

Prepared and presented three reports to the National Security Industrial Association (NSIA), ASW
Committee, as Vice-Chairman of Training and Interoperability Subcommittee; Study Leader for
following Reports:

“Training Commonality for Oceanography and Acoustic Environment Study Results”

“Training Commonality for Detection and Classification Study Results”

1 "Proposed Standard Sonar Equation for Technical, Tactical, and Training Communities"
2 Received NSIA Meritorious Award for leading these ASW industry and government studies)
3 Presented paper to the Hughes Advanced Technology and Studies Group describing the use of
4 "Distributed Interactive Simulation (DIS) Protocols in C4I Systems".

4 **Raytheon and Hughes Aircraft Company Courses**

5 **Taught** "Introduction to ASW Tactics" course, at Hughes (four times) and for the *Advanced Training*
6 *Institute* at Naval Underwater Systems Center (New London and Newport RI) 10 times at the
7 Naval Surface Weapons Center (White Oak), Naval Civil Engineering R&D Center (Oxnard), and
8 others.

9 **Attended** "C4I Architecture Implementation" (4 days, AFCEA Course), "Risk Management" (3 days),
10 "Front-End of the Business" (1 week), "Systems Engineering" (HITS/HMSC processes), "Global
11 Command and Control Seminars" (APL)

12 **Attended ATEP Courses:**

13 Software Risk Analysis, Software Estimating and Prediction, Database Modeling, Object-Oriented
14 Software Methodologies, Proposal Development, How to Interview Candidates, Microsoft Word,
15 Creating a Web Browser, Netscape User's Courses

16 **Participated** in the NSIA Industry War Games at Naval War College (Newport RI) and Marine Corps
17 Command and Development Center (Quantico).

18 **Military Schools**

19 Attended US Naval schools including Destroyer School Department Head Course, Gunnery Officer,
20 Anti-submarine Warfare (ASW) Officer, Communications Security (COMSEC), Naval War College
21 Wargaming Course, and Naval Tactical Data Systems User Courses.

22 **Military Qualifications**

23 Qualified for Command of Destroyer, Tactical Action Officer (Battle Group and Warship), Officer of the
24 Deck (cruiser and destroyer), Ship Command Duty Officer, and Surface Warfare Officer.

25 Proven Subspecialist (post Master Degree) in Geophysics, Oceanography, and ASW Systems
26 Technology, Board selected (about 10 in each of these subspecialties per year in US Navy).

27 **Significant Military And Operational C4i Experience**

28 Active duty commissioned officer in the US Navy serving in the following assignments (home ported
29 twice with each of the four fleets):

30 Area ASW Force, Sixth Fleet (CTF 66) as Staff Plans Officer coordinated all surface ships, aircraft
31 carriers, submarines and ASW/EW aircraft in the Sixth Fleet area on a daily basis; conducted
32 operational ASW with real targets; coordinated (simulated) daily submarine, surface ship and air-
33 launched anti-ship Harpoon attacks on targets. (Awarded Meritorious Service Medal for highest
34 Fleet-level ASW performance ever)

35 Fleet ASW Training Center, Pacific Fleet, the lead Coordinated ASW Tactics Instructor and Staff
Oceanographer, and at sea as an Anti-Submarine Warfare Commander Instructor and ASWC
Watch Officer during Fleet Exercises, augmenting Destroyer Squadron staffs. Also taught
coordinated ASW tactics at Fleet Combat Training Center (Point Loma) as a guest instructor to TAO
classes for three years.

Commander Carrier Group Three, as staff ASW Surface Operations and Geophysics/ Environment
Officer, deployed twice to Western Pacific and Indian Ocean; planned and conducted RIMPAC 77
with Japan, Australia, New Zealand, and Canadian ships, 3 aircraft carriers, 7 submarines and over
150 aircraft; planned Persian Gulf CENTO MIDLINK-77 with UK, Iran and Pakistan; qualified as
Battle Force TAO on 5 different aircraft carriers.

Naval Surface Warfare Officers Schools Command/Naval Destroyer School as the ASW Tactics and
TAO Instructor for Prospective COs, XO's, Department Heads and Free World Navies Courses for
mid-grade officers from over 30 countries; co-developed Naval Tactical Analysis Wargame and used

1 it to evaluate tactical concepts including Harpoon anti-ship tactical development; used ASW team
2 and sonar trainers for exercises; trainers for anti-PT boat interactive team exercises; taught anti-
3 submarine/anti-surface warfare tactics, EW, communications, and EMCON decision making classes.
4 Taught surface ship ASW at Submarine School was a guest instructor at the Naval War College and
5 used the War College wargaming facilities to evaluate new systems and ship classes being
6 designed by NAVSEA. (Awarded Navy Commendation Medal with Gold Star)

7 Commander Cruiser-Destroyer Flotilla Ten, as ASW Plans Officer, deployed to Sixth Fleet, embarked
8 on 3 aircraft carriers and 2 cruisers including USS *Albany*. Planned and executed many Sixth Fleet
9 and NATO exercises and a CENTO air defense exercise. Engaged in more than 50 Soviet bomber
10 over-flights of the Battle Group, 100% successfully intercepted by fighters and missile lock –on prior
11 to 100 miles from the aircraft carrier. (Awarded Meritorious Unit Commendation for validating anti-
12 SSBN tactics and developing SSN direct support procedures)

13 USS *Hollister* (DD788), Operations Officer, deployed for 2 years, 19 months of consecutive combat
14 operations off Vietnam in the Seventh Fleet, provided naval gunfire support (over 28,000 5/38
15 rounds), maritime surveillance, SAR, *Gemini VIII* NASA space craft rescue ship, and EW intelligence
16 gathering and Korean operations. (Awarded Secretary of Navy Unit Commendation, Navy
17 Commendation Medal with Combat "V")

18 USS *Robert L. Wilson* (DD748), ASW Officer, deployed to Sixth Fleet for ASW operations, UN rescue
19 ship off Cyprus, NATO exercises, *Gemini IV* NASA space craft rescue ship, participated in the
20 Dominican Republic operations. (Armed Forces Expedition Service Medal)

21 USS *Springfield* (CLG7), Main Battery Fire Control Officer and Missile Fire Control Officer, deployed in
22 the Sixth Fleet Flagship, home ported in Villefranche-sur-Mer, France.

23 **State of Arizona, Industry Association, Company, and Military Awards**

24 Arizona Secretary of State "Arizona Golden Rule Citizen Certificate" and plaque from Janice K. Brewer,
25 Secretary of State, for "exemplifying the spirit of the Golden Rule daily: "Treat others as you would
26 like to be treated", nominated by former Santa Cruz County Supervisor Ron Morriss, for his work
27 as a voluntary Energy Commissioner and his work for the county before the Arizona Corporation
28 Commission. (2004)

29 National Security Industrial Association. (NSIA) Anti-Submarine Warfare Committee, Meritorious Award
30 from the NSIA President, Admiral Hogg USN (Ret.), for leading several ASW training industry and
31 government studies. (1992)

32 Merit Awards. Raytheon and Hughes, four times, for achievement and excellence in performance.

33 Military Awards include Meritorious Service Medal, Naval Commendation Medal with Combat "V" and
34 Gold Star, Navy Unit Commendation, Navy Meritorious Unit Commendation, National Defense
35 Medal, Armed Forces Expeditionary Medal (Dominican Republic), Vietnam Service Medal with
three Bronze Stars, Vietnam Campaign Medal with "1960-", Overseas Service Ribbon (Italy).

36 **Community Service**

37 Joint Santa Cruz County and City of Nogales Energy Commission from February 2001 to present –
38 Member and Vice-Chairman and periodically report to both the Santa Cruz County Board of
39 Supervisors, P&Z Commission and City of Nogales Council on various energy matters.

40 Marauder Historical Society from 2002 to present – Board Member and Vice-President, Chairman of the
41 Living Legacy Fund Raising and Archive Donation Campaigns, semi-annual Board meetings, annual
42 "Gathering of the Eagles" Martin B-26 medium bomber reunions since 2006, leading proponent of the
43 "Heritage Flight" so the first World War II generation legacy is passed to later generations

44 Tubac Community Center Foundation from 1998 to 2000 – Member of the Board of Directors, wrote
45 Bylaws for this IRS Code 501(c)3 organization that operates and maintains the Community Center
for Santa Cruz County, softball field and play ground

46 **Security Clearance**

47 Active DoD Secret Clearance

1 **Exhibit B**

2 **Excerpt from the UNS Gas Rate Case Magruder Reply Brief**
3 **to Provide Testimony about**

4 **“Administrative changes in the Company’s Rules and Regulations, Changes in “connect”**
5 **Fees, Billing Schedules, Predatory Loan/Check Cashing Facilities as Billing Agents, Revised**
6 **Billing Statement, and R&R Publication”**

7 The concluding UNS Gas, Inc., rate case has issues that are identical to those in this UNS Electricity,
8 Inc., rate case. There are some minor changes in this version, for example, the footnotes have been
9 renumbered to follow this Direct Testimony.

10
11 Below is Section 2.6 that discusses several interrelated issues, as shown by the title of the section.

12
13 **QUOTE:**

14 **2.6 Administrative Rules and Regulations Changes in “Connect” Fees, Billing Schedules,**
15 **Predatory Loan/Checking Cashing Facilities as Billing Agents, Revised Billing**
16 **Statement, and R&R Publication**

17 **Issue.** UNS Gas has proposed several administrative changes to its Rules and Regulations involving

- 18 a. Additional “connect” charges,
19 b. Billing schedule changes,
20 c. Predatory loan and check cashing facilities as bill payment agents,
21 d. Revised billing statement, and
22 e. Publication of the UNS Gas Rules and Regulations.

23 The Company wants to change its billing rules and regulations to be aligned with other UNS
24 entities, **citing a 25-year old 1982 regulation,**⁸⁴ significantly decreasing allowed days before
25 disconnection of service. The Company actively promotes pay-day loan and check cashing
26 facilities as bill paying agents. This is extremely prejudicial to lower income customers. Table
27 B-2 below compares these policy changes. The result is a change from 40 to 20 days, after
28 the Due Date, before possible termination of service.

29 **(1) UNS Gas Initial Brief Changes from its Testimony:**

- 30 a. Additional “connect” charges. The Company Initial Brief summarized resolution of changes to
31 four additional “connect” charges which involve this issue.⁸⁵ The Company also proposed that

32
33 ⁸⁴ Magruder Initial Brief, at 32. A.A.C R-14-2-310.C was last updated in 1982 according to the appropriate
34 “historical” note. If this rule has not been enforced with UNS Gas (or Citizens), UNS Electric, TEP or
35 Southwest Gas in these 25-years, implementation at this time should require more than a weak
administrative rationale.

⁸⁵ UNSG Initial Brief, section VI.A, at 59-60.

1 two of its additional recommendations now be denied which involved eliminating the
2 Incremental Contribution Study (ICS) which would reduce income by \$1.2 million per year, and
3 eliminating the \$250 mandatory cost for excess flow valves after July 2008.⁸⁶

4 b. Billing Schedule. The Company's Initial Brief states it

5 "proposes to modify its billing terms to conform its payment terms with the Arizona
6 Administrative Code [R14-2-310.C]. RUCO argues that this is unreasonable.
7 RUCO, is, in effect, arguing that the Commission's own rules on this issue are
8 unreasonable."⁸⁷

9 The Company's Initial Brief goes through the timeline from when the meter is read, also the
10 same as Due Date, to service suspension.⁸⁸

11 The Company Initial Brief did not respond to the Magruder testimonies which showed a
12 different schedule (i.e., Table B-2 below), based on understanding the revised rules.

13 c. Predatory Loan and Check Cashing Facilities as Bill Payment Agents. The Company Initial
14 Brief states:

15 "UNS Gas will conduct further inquires about predatory practices at payday loan
16 business upon receiving specific information [unknown, unspecified] from the
17 ACAA. UNS Gas is not encouraging any customers to obtain loans from these
18 operations and ACAA presets no evidence to the contrary. UNS Gas covers any
19 [agent's; not customer's check cashing or bill paying] fees related to the payment of
20 gas bills at locations where it does not have an office. Further, the Company will
21 continue its efforts to provide low-income customers with numerous options for
22 paying their bills."⁸⁹ [inserts for accuracy, completeness and clarity]

23 During oral testimony Mr. Gerry Smith stated up to 790 UNS Gas bills were paid in one
24 month at single month to a loan/check cashing agent.

25 The Company's Initial Brief did not respond to Magruder Testimony or Exhibit M-1.

26 d. Revised Billing Statement. UNS Gas has not responded to the Magruder oral testimony on this
27 issue, in particular, to a most offensive statement printed on each UNS Gas bill:

28 **"To reconnect Service after Non-Payment Pay your bill (cash only) at ACE
29 American's Cash Experience or authorized agents"**⁹⁰

30 This is offensive. Why does UNS Gas push that company on its billing statement?

31 e. Publication of the R&Rs. UNS Gas Initial Brief did not respond to Magruder testimony on this
32 issue; however, earlier Rejoinder Testimony gives some Company's views on this issue.

33 ⁸⁶ *Ibid.* at 59.

34 ⁸⁷ *Ibid.* at 60.

35 ⁸⁸ *Ibid.*

⁸⁹ *Ibid.* at 57.

⁹⁰ Magruder Initial Brief, at 37

1 **(2) Intervenor Initial Brief Views.**

2 (a) **RUCO** stated the following about proposed Rules and Regulations

3 a., c., d., and e. These issues were not included in RUCO Initial Brief.

4 b. Billing schedule changes. RUCO initial Brief stated

5 "The Company's proposal is consistent with the minimum requirements of the
6 Commission's rules, but the only advantage to the Company that it could identify for
7 adopting the changes was that it would bring consistency to the three affiliated
8 utilities that are served by the consolidated call center operated by another of the
9 affiliates."⁹¹

10 RUCO continues:

11 "RUCO opposes these changes. The proposed payment dates so short that a
12 customer could go on vacation and come home to find his gas shut off. Customers
13 have contacted RUCO about the proposed change and expressed their opposition
14 to it. ... Further, the Company is already being compensated (and will continue to be
15 as a result of this proceeding) for the delay between the time bills are rendered and
16 when they are paid as a result of its working capital allowance... the Company
17 receives no particular benefit from the proposed change. Despite its claim that the
18 shorter payment periods would be consistent with the affiliated electric companies,
19 consistency across the affiliated utilities can not be fully accomplished... Therefore,
20 even with the proposed change, call center agents would have to deal with the
21 different issues faced by gas and electric customers... Changing the payment
22 schedule would provide at most a *de minimus* benefit to the Company. Further, the
23 Company is not harmed by the current schedule. However, customers perceive that
24 they are harmed by the proposed change. Therefore, the Commission should not
25 grant the request for the abbreviated billing terms..."⁹²

26 (b) **ACC Staff** did not comment on any of these issues in its Initial Brief. However, earlier, the

27 ACC Staff recommended approval of the proposed reduced billing schedule (b.) and that a

28 "a temporary six-month transition period should help alleviate any hardship on
29 customers from this change in billing terms."⁹³

30 (b) **ACAA** did not submit an Initial Brief; however, prior ACAA Testimony covered two issues:

31 b. Billing Schedule. ACAA stated lower income customers usually do not have a checking
32 account, credit cards, or the ability to pay on-line. This schedule is a challenge for those
33 who have to pay in cash and need to arrange transportation. This leads to this class of
34 customers, when using "payday" loan services driving, even more customers to predatory,
35 onerous lenders.⁹⁴

"Twenty days is an absolutely reasonable timeframe in which to pay UES, ten
days simply is not."⁹⁵

33 ⁹¹ RUCO Initial Brief, at 34.

34 ⁹² *Ibid.* at 34-35.

35 ⁹³ Magruder Initial Brief, at 34.

⁹⁴ *Ibid.*

⁹⁵ *Ibid.*

1
2 c. Predatory Loan and Check Cashing Facilities at Bill Payment Agents. ACAA Testimony
3 included information about pay-day loan companies. In Arizona loans totaling over \$875
4 million, at an average loan amount of \$325, with an average fee of 17.27% with an APR of
5 460% resulted in nearly \$155 million in loan fees collected in 2005. Additional ACAA
6 evidence showed that a \$325 loan costs the pay-day loan taker pays an average of \$793
7 total payments, which is, on average, a payback twice the original loan.⁹⁶

8 ACAA included the **UES "Cash Payments Agents" webpage**⁹⁷ in its Testimony that
9 shows ACE Cash Express locations at

- 10
- 11 • Bullhead City,
 - 12 • Camp Verde,
 - 13 • Chino Valley,
 - 14 • Cottonwood,
 - 15 • Golden Valley (\$1.00 fee)
 - 16 • Kingman (\$1.00 fee),
 - 17 • Lake Havasu City,
 - 18 • 3 in Nogales (2 with \$1.00 fees),
 - 19 • Prescott and
 - 20 • Prescott Valley.

21 Other billing agents include Ozark "Advanced Quick Cash" in Flagstaff, with other non-
22 payday loan payment agents in Winslow, Show Low, and Sedona.⁹⁸

23 (c) **Magruder** Initial Brief and subsequent information below discussed these concerns;

24 a. Additional "connect" charges. Based on UNS Gas Initial Brief, there are two open issues
25 (1) elimination of the Incremental Contribution Study (ICS) and (2) mandatory costs for
26 excess flow valves. During the hearings I presented personal information concerning an
27 earlier ICS when I purchased Magruder home over ten years ago. I never recovered any of
28 Magruder "contribution." There are two classes of ICS-customers, namely, individuals or
29 subdivision contractors. Individuals maybe "infilling" between other residences or making
30 short line additions. Individuals have a much lower probability of seeing any of their
31 contributions returned compared to a subdivision builder. Elimination of a contribution
32 return increases overall cost of a residence; almost *de minimus* in a long-term mortgage.

33 The mandatory excess flow value cost should be recovered from the contractor or
34 new homeowner, when installed. If this value is to be installed in a current ratepayer, then

35 ⁹⁶ *Ibid.* at 34-35.

⁹⁷ See <http://uesaz.com?Customersvc/PaymentOptions/Agents/asp> verified on 13 June 2007, added new entry
for Golden Valley.

⁹⁸ *Ibid.* at 35.

1 using a \$10.00 per month for 25 months would be reasonable way to incrementally but
 2 completely recover this cost, with any interest to be considered in the next rate case.

3
 4 b. Billing Schedule. Billing schedules in the UNSG Initial Brief⁹⁹ do not agree with prior
 5 testimony, Table B-2 (next page) or the reworded rules (R&R Sec. 10.C and 11.E).¹⁰⁰
 6 RUCO also has a different interpretation. The Company never responded to Table 2 in
 7 various forms in the Magruder Testimonies, Initial Brief or Exhibit M-1 that reports local
 8 concerns on first page of the *Arizona Daily Star* about billing schedule changes.

9 The Due Date is defined at date bill is rendered, or later of (1) postmark date, (2)
 10 mailing date, or (3) billing date shown on bill; however the billing date shall not differ from
 11 postmark or billing date by more than two days. UNS Gas uses "drive by" automated meter
 12 reading equipment reports its meter readings on a real time basis to the Company by
 13 wireless communications. Company billing usually has that bill in the mail that day or the
 14 following day. There is a week window in which a gas meter is read.

15 Bills are not due the same date each month, as they depend on when the meter is
 16 read. As a result, the Due Date can be on eight (8) or more different monthly dates. This
 17 compounds financial planning for those on set pay periods (weekly, semi-monthly, etc.).
 18 UNS Gas and UNS Electricity bill due dates are independent. Monthly utility due dates
 19 vary from month to month. Most credit card Due Dates are 20 days after mailing; due on
 20 same date each month, sometimes 50 or more days after a credit card purchase..

Table B-2 – Changes in Proposed Termination Dates for UNS Customers.¹⁰¹

Action**	Notice	Present Policy	Change	Proposed Policy
Day Meter is Read ≈ DUE DATE	Bill	15 Days after Due Date	5 days earlier	10 days after Bill is Due Date
Penalty Charge Starts (Assessed)	None	15 Days after Due Date	5 days earlier	10 days after Due Date
Bill is Past Due (and Delinquent)	None	No payment within 30 days after Due Date	15 days earlier	15 days after Due Date
Suspension of Service Notice/ Termination Notice	Written notice by 1 st Class Mail	No payment within 30 days after Due Date	15 days earlier	No payment within 15 days after Due Date
		And 10 days prior to Termination Date**	20 days earlier	And 5 days prior to Termination Date**
Earliest Service can be Terminated = TERMINATION DATE	None	No payment within 40 days of Due Date	20 days earlier	No payment within 20 days of Due Date

31 * Normally within 1 day of the gas meter being read that can vary by 8 or more monthly dates between billings.

32 ** A bankruptcy court may require a more stringent schedule.

33
 34 ⁹⁹ UNSG Initial Brief, at 60.

¹⁰⁰ Magruder Initial Brief, Table 4, at 31

35 ¹⁰¹ This table was derived to understand these R&R sections. No simple timeline is shown the R&R and definitions are inconsistent. It is very difficult to understand this procedure.

1 c. Predatory Loan and Check Cashing Facilities as Bill Payment Agents.

2 The implementation of this reduced billing schedule, when coupled with the Company
3 emphasis on using predatory loan and check cashing facilities as bill payment agents, has
4 caused considerable angst by TEP and Southwest Gas customers locally. Enclosure (1)
5 provides a recent *Tucson Citizen* editorial on this issue. Our Arizona State Legislative
6 representative, Marian McClure has tired to get a bill through the legislature to reduce the
7 impact of these "agents", sometimes on all four-corners of the same intersection.

8 The Magruder Initial Brief stated:

9 "Any reliance of co-located payday and expensive check cashing facilities where utility
10 bills are paid in cash [required by UNS Gas] is an unethical temptation at three
11 locations designated by the Company in Nogales, Santa Cruz County, the smallest
Arizona county, where 24.5% of our population lives below the poverty line."¹⁰²

12 The National Consumer Law Center published *Utilities and Payday Lenders: Convenient*
13 *Payments, Killer Loans* this June.¹⁰³ Enclosure (2) provides a copy of the
14 Recommendations from this report on utilities relationships with predatory lenders.

15
16 d. Revised Billing Statement. The Magruder Initial Brief supported the oral testimony on this
17 issue. Fourteen suggestions were recommended in the Initial Brief to improve readability
18 and understandability of all elements necessary for effective compliance using this monthly
19 statement and communications media from the Company.

20
21 e. Publication of the UNS Gas Rules and Regulations. As was clearly demonstrated in the
22 Magruder Testimonies, the complexity and wording is required to be simplified into "plain"
23 legally-compliant English, at eight-grade level or lower, because 19.4% of the adults in
24 Santa Cruz County have less than ninth grade reading level.¹⁰⁴

25 **(3) Final Recommendations for resolution of these issues.**

26 a. Additional "connect" charges. It is recommended that

- 27
28 1. The Incremental Contribution Study (ICS) process be eliminated in the R&Rs and tariffs
29 so that each individual and builder/developer pays for all gas lines and
30

31
32
33 ¹⁰² Magruder Initial Brief, at 36.

34 ¹⁰³ Although this document was issued after the hearings, its data are current and is readily available at
www.consumerlaw.com ACAA Executive Director Cynthia Zwick is acknowledged in assisting in the
35 preparation of this excellent document.

¹⁰⁴ Magruder Initial Brief, at 35.

- 1 2. All customers requiring the mandated excess flow valves have the first \$250 cost
2 amortized over the first 25 months after installation with any additional costs to be
3 considered at the next rate case and
- 4 3. The five UNS Gas recommended "connect" charge changes be approved.¹⁰⁵

5
6 b. Billing Schedule. It is recommended that:

- 7 1. The proposed billing changes in payment schedules be denied in R&R Sec. 10.C and
- 8 2. If the new billing schedule changes are not denied, then the ACC Staff's
9 recommendation for a six month delay be imposed under the following conditions:
 - 10 i. The notice of this change be included in a minimum of three different billing notices
11 to customers before implementation and
 - 12 ii. This notice be published at least three times in local newspapers and
 - 13 iii. This notice be in "plain" English/Spanish with graphics to facilitate understanding
14 and include the required post-termination process, e.g., the actual amount of the
15 required deposit, that is, the two-highest bills in the previous twelve months.
- 16 3. All future UNS Gas bills have printed in **bold** with the actual calendar dates for
17 (1) BILL DUE DATE,
18 (2) LATE PAYMENT PENALTY START DATE, and
19 (3) SERVICE TERMINATION DATE FOR NONPAYMENT.
- 20 4. The proposed change to R&R Sec. 11.B.1.d be denied and the original version remain
21 as presently stated for "Terminations Without Notification".

22
23 c. Predatory Loan and Check Cashing Facilities as Bill Payment Agents. It is recommended that:

- 24 1. Because this Company relies on payday loan/check cashing facilities, it is ill-serving its
25 customers. New bill payment agents **shall** be found to replace all payday loan/check
26 cashing facilities within the three months, of if not, then the Company **shall** be directed
27 to consider new incentives for bill payment agents, and, if payday loan/check cashing
28 facilities are not been replaced within **six** months, a Company employee **shall** be on-
29 site during designated days each week at each customer town or city to receive bill
30 payments in any legal form at no charge to customers and

31
32
33
34
35

¹⁰⁵ UNS Gas Initial Brief, at 58 (all three bullets) and 59 (first two bullets).

- 1 2. All charges to UNS customers for using a credit or debit card **shall** be eliminated when
2 paying by phone (as a service provided by this public service company and at company
3 expense, if any) and
- 4 3. The ACC will open a "generic" docket to consider the seven recommendations from the
5 National Consumer Law Center, from enclosure (2) within two months, slightly
6 reworded, to match the situation in Arizona:
- 7 (i) The ACC **shall** prohibit all Arizona public service companies (utilities) or their agents
8 from entering into arrangements to pay for bill collection services from financial
9 service companies or other lenders that lend money at exorbitant rates, defined as
10 when an annual percentage rate is above 36 percent.
- 11 (ii) The ACC **shall** require all utilities with over 750 customers, to maintain company-
12 operated and staffed service centers, including counters for in-person bill payments
13 using cash, at locations convenient for customers throughout the utility service area,
14 at a minimum of one day per week.
- 15 (iii) The ACC will allow utilities to sign contracts for bill payment services at additional
16 locations that enhance convenience for customers but only with supermarkets, drug
17 stores, convenience stores, other retail outlets, community groups, banks or other
18 financial service providers that do not lend money at exorbitant rates.
- 19 (iv) The ACC **shall** require all utilities to verify with the ACC the eligibility of all retail
20 service providers to act as bill payment agents. Utilities **shall** be required to verify
21 that all authorized or unauthorized bill payment agents from whom the utilities
22 accept payments do not hold ACC business or other licenses that allow them to lend
23 money at exorbitant rates.
- 24 (v) When a utility accepts payments from third parties that offer bill payment services to
25 customers but have no contracts with utilities, the ACC **shall** require utilities to
26 receive from those agents certifications that they have charged customers no more
27 than a nominal amount, not to exceed \$1.00 or 1 percent, whichever is lower, for bill
28 payment, and that those customers have NOT been solicited to take out loans.
- 29 (vi) The utilities should only be allowed to close down company operated and staffed
30 service centers if they can demonstrate to the Commission that the cost of those
31 centers would put an unreasonable burden on ratepayers.
- 32 (vii) All Arizona laws and ACC financial service regulations should prohibit lenders who
33 collect utility bill payments from promoting or soliciting lending services before,
34 during or after the transaction, and from lending money at exorbitant rates for use in
35 utility bill payments. (Not an UNS Gas action)

d. Revised Billing Statement. It is recommended that

1. The billing statement reformatting suggestions be considered and re-designed to a user-friendly format and
2. A new billing format shall be submitted to all parties within 30-days for comment and review prior to implementation and
3. Any reference to payday loan or check cashing bill payment agents shall be deleted, unless certified to not charge exorbitant rates in accordance with recommendation c.3.v above.

e. Publication of the UNS Gas Rules and Regulations. It is recommended that:

1. The Company publish a new reader-friendly, plain English UNS Gas Rules and Regulations after review and approval by the ACC Staff, and
2. A Spanish-version of the R&Rs be approved by the ACC Staff within the next six months and kept current with the English version and
3. As a minimum, ALL customers will receive a copy or R&R sections shown in Table B-3:

END QUOTE

**Table B-3. Minimum Distribution Requirements of the UNS Electric R&Rs
[changed from UNS Gas version]**

Section	Present Customer	New Customer	Builders or Contractors	When Provided (note 1)
1. Applicability of Rules and Regulations and Descriptions of Service	Yes	Yes	Yes	Within 30 days
2. Definitions	Yes	Yes	Yes	Within 30 days
3. Establishment of Service	If applicable	Yes	Yes	When applying for service
4. Minimum Customer Information Requirements	Yes	Yes	Yes	Within 30 days
5. Master Metering	No	No	Yes	When applying for service
6. Service Lines and Establishments	No	No	Yes	When applying for service
7. Provision of Service	Yes	Yes	No	Within 30 days
8. Characteristics of Service – Voltage, Frequency, and Phase	Yes	Yes	Yes	Within 30 days
9. Line Extensions	No	If applicable	Yes	When applying for service
10. Meter Reading	Yes	Yes	No	Within 30 days
11. Billing and Collection	Yes	Yes	No	Within 30 days
12. Termination of Service	Yes	Yes	No	Within 30 days
13. Administrative and Hearing Requirements	Yes	Yes	If applicable	Within 30 days
14. Statement of Additional Charges	Yes	Yes	Yes	Within 30 days
15. Curtailment Procedures	Yes	Yes	No	Within 30 days

Note 1. "Within 30 days" means a copy of this section shall be provided to the designated receiver within 30 days after approval of the Rules and Regulation section or whenever this section is updated within 30 days or when applying for service.

1 Exhibit B, Enclosure (1)

2 "Utilities Send Poor Into The Lion's Den – Tucson Electric Power, SW Gas
3 Direct People Who Need To Pay Their Bills Quickly To Payday Lenders"

4 by
5 BILLIE STANTON
6 *Tucson Citizen*
7 Published 06.12.2007

8 If you're so poor or broke that it's tough to pay your utility bills, the last thing you need is a payday loan
9 with interest of 360 percent or more.

10 But payday lenders are where two utilities send folks who need to pay in cash, quickly, before the gas
11 or electricity is shut off.

12 Tucson Electric Power Co. and Southwest Gas Corp. say payday lenders are the only widely and
13 conveniently located sites that will take cash payments.

14 Eddie Basha isn't buying it, and neither am I. His Food City and Bashas' are the only Arizona grocery
15 stores that take cash payments from utility customers. "It's costly to do it, because in the grocery
16 business, everything revolves around labor," Basha says.

17 Still, it depends on what kind of business you want to run. "It really is, more than anything else, a
18 convenience for the customer," he says. "And whatever way we can best serve our customers, we try
19 to do it."

20 That's what utilities claim, too. But they're not doing customers any favors by sending them to payday
21 lenders.

22 Yet utilities nationwide are doing just that, the National Consumer Law Center reported last week.
23 At ACE Cash Express, Tucson's top taker of such payments, employees' pay is partly based on
24 how many loans they make, says its federal securities Form 10K.

25 ACE's Web site invites customers to also pay telephone bills from T-Mobile, Verizon Wireless and
26 Sprint PCS.

27 But convenience can be costly. A Gallup, N.M., cashier who borrowed \$200 to pay her electric bill
28 because "it was so easy to do" wound up paying \$510 in fees on the payday loan over six months,
29 The New York Times reported Dec. 23.

30 Nationwide, **almost 1 in 4 utility bills is paid in person**, says Dennis Smith of Chartwell Inc., an
31 industry research firm.

32 They're usually **cash, paid by customers with low incomes and education, and by minorities** - all
33 people less likely to have bank accounts, the law center reports. Their communities have limited
34 banking services - unless you count payday lenders, which are ubiquitous in poor neighborhoods.

35 In 2000, when TEP moved its headquarters to a downtown high-rise without lobby space or
convenient parking, it arranged for payments to be taken by check-cashing stores, spokesman Joe
Salkowski said.

1 Arizona legalized payday lending the same year, and check cashers quickly morphed into payday
2 lenders.

3 TEP, which gets about 5 percent of its payments from this venue, now is seeking different pay
4 stations, Salkowski said. "We work closely with our low-income (people's) advocates, and we've
5 heard the concern they've raised," he said.

6 Not so Southwest Gas.

7 It contracts with Western Union to set up payment sites, and 37 percent of its 648 pay stations
8 statewide are payday lenders, spokeswoman Libby Howell said.

9 Arizona utility customers pay a \$1 fee per bill payment for this service.

10 If people "merely come in to pay their gas bill," Howell said, "we don't want them to be solicited for a
11 loan. However, we've received no customer complaints."

12 Reminded that unsophisticated poor people are unlikely to complain, Howell merely murmured assent.

13 Among Southwest Gas pay stations, 33 percent are at Bashas' and Food City, and 11 percent are at
14 small markets and convenience stores.

15 If some convenience stores take the payments, why not all?

16 If Bashas' and Food City can, why not all grocery stores? Why not Walgreens stores, which pepper
17 Tucson?

18 And for customers with checking accounts, why not their bank or credit union?

19 "How hard would it be?" asked Kelly Griffith, deputy director of the Southwest Center for Economic
20 Integrity.

21 It's easy for payday lenders, which continue to proliferate in poor neighborhoods in the 38 states that
22 permit them.

23 These lenders, whose 24,000 U.S. outlets made \$40 billion in loans in 2005, cite high risks. The
24 industry, which gave \$2.9 million to political campaigns and committees last year, lobbies on the need
25 to protect "consumer choice," "financial rights" and "your control of your money."

26 Arizona legislators heard those arguments this year when Rep. Marian McClure, R-Tucson,
27 unsuccessfully pushed reforms.

28 Despite their arguments, though, payday lenders near military bases wreaked such havoc that a
29 federal law enacted last year limits interest to 36 percent on loans to military personnel.

30 Civilian poor people be damned, evidently.

31 Utilities' practice of sending poor customers into the lion's den is an outrage.

32 "Your most vulnerable consumers are the exact folk payday lenders are looking for," Griffith said. "And
33 it's unconscionable."

34 Tucson Citizen Editorial Board blog: Legislators' shameful behavior

35 Billie Stanton may be reached at 573-4664 and bstanton@tucsoncitizen.com. [Emphasis added]

2
3 **Recommendations for Utility Regulators**
4 **from**
5 ***Utilities and Payday Lenders:***
6 ***Convenient Payments, Killer Loans***¹⁰⁶

- 7 1. State regulators should prohibit utilities or their agents from entering into arrangements to
8 pay for bill collection services from financial service companies or other lenders that lend
9 money at exorbitant rates (typically, an annual percentage rate above 36 percent).
- 10 2. State regulators should require utilities to maintain company operated and staffed
11 service centers, including counters for in-person bill payments using cash, at locations
12 convenient for customers throughout utility service territories.
- 13 3. Regulators should allow utilities to sign contracts for bill payment services at additional
14 locations that enhance convenience for customers but only with supermarkets, drug
15 stores, convenience stores, other retail outlets, community groups and banks or other
16 financial service providers that do not lend money at exorbitant rates.
- 17 4. Regulators should require utilities to verify the eligibility of all retail service providers to
18 act as bill payment agents. Utilities should be required to verify that all authorized or
19 unauthorized bill payment agents from whom utilities accept payment do not hold
20 licenses that allow them to lend money at exorbitant rates.
- 21 5. When utilities accept payments from third parties that offer bill payment services to
22 customers but have no contracts with utilities, regulators should require utilities to
23 receive from those agents certifications that they have charged customers no more
24 than a nominal amount (typically, \$1 or 1 percent of the amount due, whichever is
25 lower) for bill payment, and that those customers have not been solicited to take out
26 loans.
- 27 6. Utilities should only be allowed to close down company operated and staffed service
28 centers if they can demonstrate that the cost of those centers would put an
29 unreasonable burden on ratepayers.
- 30 7. State and federal laws and financial services regulations should prohibit lenders who
31 collect utility bill payments from promoting or soliciting lending services before, during
32 or after the transaction, and from lending money at exorbitant rates for use in utility bill
33 payments.

34 ¹⁰⁶ By the National Consumer Law Center, 77 Summer Street, 10th Floor, Boston, MA 02110
35 www.consumerlaw.org June 2007, at 27-28.

1 **Service List**

2 Original and 17 copies of the foregoing are filed this date with:

3
4 **Docket Control** (13 copies)
5 **Arizona Corporation Commission**
6 1200 West Washington Street
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7 **Tenna Wolfe**, Administrative Law Judge (1 copy)
8 **Ernest G. Johnson**, Director Utilities Division (1 copy)
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