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BEFORE THE ARIZONA CORPORATION COMMISSION

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CHAIRMAN

BOB STUMP
COMMISSIONER

BOB BURNS
COMMISSIONER

TOM FORESE
COMMISSIONER

ANDY TOBIN
COMMISSIONER

11 **IN THE MATTER OF THE) DOCKET NO. E-01933A-15-0239**
12 **APPLICATION OF TUCSON)**
13 **ELECTRIC POWER COMPANY)**
14 **FOR APPROVAL OF ITS 2016) THE ENERGY FREEDOM COALITION**
15 **RENEWABLE ENERGY STANDARD) OF AMERICA'S NOTICE OF FILING**
16 **AND TARIFF IMPLEMENTATION) DIRECT TESTIMONY OF CHARLES J.**
17 **PLAN.) CICHETTI**

16 The Energy Freedom Coalition of America ("EFCA") hereby submits the Direct Testimony
17 of Charles J. Cicchetti in the above-referenced matter.

18
19 Respectfully submitted this 11th day of March, 2016.

20
21 Arizona Corporation Commission

22 DOCKETED

23 MAR 11 2016

24 /s/ Court S. Rich

25 Court S. Rich
26 Rose Law Group pc
27 Attorney for EFCA

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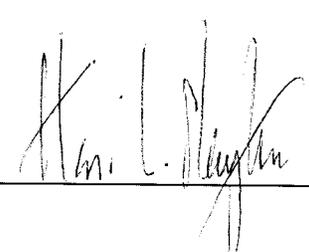
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BEFORE THE ARIZONA CORPORATION COMMISSION

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**IN THE MATTER OF THE
APPLICATION OF TUCSON ELECTRIC
POWER COMPANY FOR APPROVAL
OF ITS 2016 RENEWABLE ENERGY
STANDARD AND TARIFF
IMPLEMENTATION PLAN**

DOCKET NO. E-01933A-15-0239

DIRECT TESTIMONY OF CHARLES J. CICCHETTI

1 **Section 1: Introduction**

2 **Q. Who are you?**

3 A. I am Charles J. Cicchetti, Ph.D. I am co-Founder of Pacific Economics Group, Inc.
4 (PEG), 1341 Hillcrest Avenue, Pasadena, California, 91106. I am an economist with 46
5 years of experience in matters related to electricity, energy, and environmental matters. I
6 have studied and provided expert testimony before regulatory commissions and courts on
7 matters related to determining the marginal cost, pricing, regulation, financing, valuation,
8 and more, for electricity.

9 The Energy Freedom Coalition of America (EFCA) has retained me to provide
10 evidence that responds to Tucson Electric Power Company's (TEP) proposal contained in
11 its 2016 Renewable Energy Standard and Tariff (REST) Application to expand TEP's
12 Utility-Owned Residential Solar Program and to initiate its proposed Utility-Owned
13 Residential Community Solar Program (the Community Solar Program). In my
14 testimony, I first discuss the public policy of distributed generation (DG) solar, and
15 TEP's proposals. Second, I review related TEP tariff changes. Third, I explain how
16 TEP's proposed product offerings and tariff revisions would be anticompetitive, contrary
17 to accepted regulatory principles, inconsistent with the public interest, would adversely
18 affect DG solar in Arizona, and should be rejected. I then suggest a potentially less
19 anticompetitive mechanism that would allow TEP potentially to participate as a provider
20 of DG solar.

21
22 **Q. Are you familiar with electric utility regulation?**

23 A. Yes. I was the principal economist for the Environmental Defense Fund (EDF) in the
24 very important Madison Gas and Electric rate design proceeding before the Public
25 Service Commission of Wisconsin (PSCW), as well as complementary proceedings in
26 Michigan, California, and New York in the early 1970s. I also served as the Chair of the
27 PSCW starting in 1977, and served as a Commissioner until 1980. During this time, the
28 Commission addressed time-of-use (TOU) pricing, marginal cost pricing, and held the

1 first statewide long-range planning proceeding. I was a member of the Executive
2 Committee of the National Association of Regulatory Utility Commissioners (NARUC)
3 and was Chair of NARUC's Committee on Implementing the National Energy Act of
4 1978 that included the Public Utility Regulatory Policies Act (PURPA).

5
6 **Q. Please describe your academic background.**

7 A. I earned a B.A. in economics in 1965 from The Colorado College after attending the U.S.
8 Air Force Academy for nearly three years. I earned a Ph.D. in economics in 1969 from
9 Rutgers University. After earning my Ph.D., I spent three years engaged in post-doctoral
10 research at Resources for the Future (RFF) in Washington, D.C.

11 In 1972, I joined the faculty at the University of Wisconsin-Madison, ultimately
12 earning a tenured full professorship in both Economics and Environmental Studies. In
13 1987, I became the Deputy Director of the Energy and Environmental Policy Center at
14 the John F. Kennedy School of Government at Harvard University, where I co-directed
15 the Harvard Utility Forum in the late 1980s. Between 1998 and 2006, I held the Miller
16 Chair in Government, Business and the Economy at the University of Southern California
17 (USC). I ended my teaching activities in 2010, except for a series of on-line lectures and
18 class discussions in the Electrical Engineering Department at USC.

19
20 **Q. Can you summarize your consulting activities and various business activities?**

21 A. I sometimes describe the majority of my work as providing economic, finance, and
22 statistical work to "pipes and wires" companies and their customers. These include
23 companies within the electricity, natural gas, telecommunications, cable, oil, and other
24 related industries. I have written several books based on my work on topics such as
25 utility rate design, marginal cost analysis, quantitative environmental studies, financial
26 matters, energy conservation, and renewable energy. I have written or co-authored seven
27 books on electricity tariffs, cost analyses, policy, regulation and competition. My most
28 recent book was entitled *Going Green and Getting Regulation Right*. Ex.-EFCA-

1 Cicchetti-1 lists my activities, publications, and testimonies before regulatory bodies and
2 courts.

3
4 **Q. What is the purpose of your evidence in this proceeding?**

5 A. The primary purpose of my testimony is to demonstrate that TEP's proposed expansion
6 of its TEP-Owned Residential Solar (TORS) pilot program and its proposed new TEP-
7 Owned Residential Community Solar Program—and their flat-rate multi-year tariffs—are
8 central components of TEP's effort to monopolize DG solar. When viewed from the
9 traditional regulatory perspective of whether or not a proposal is in the interests of a
10 utility's ratepayers, TEP's proposal fails on all accounts. In fact, each element of its
11 proposal will make ratepayers worse off and, contrary to its claimed goals, its proposal
12 will not promote the efficient use of electricity. Consequently, the Commission must
13 reject both TEP's proposed expansion of its TORS program and its new Community
14 Solar Program. I would also observe that TEP's proposed revisions of net energy
15 metering (NEM) and other tariffs would further advance TEP's anticompetitive efforts
16 and drive competitors and customer choice from the market.

17
18 **Q. How is your testimony organized?**

19 A. In Section 2, I summarize my conclusions and recommendations. In Section 3, I briefly
20 review TEP's current TORS pilot program and TEP's proposal to expand it, as well as its
21 proposal to initiate a TEP-Owned Residential Community Solar Program. In Section 4, I
22 demonstrate how each element of TEP's proposals to build, own and operate rooftop and
23 community solar facilities, coupled with other tariff revisions, would undercut ratepayers
24 by reducing benefits and eliminating third-party-provided choices, and discourage
25 improvement in energy efficiency. TEP's sole and obvious rationale is to extend TEP's
26 regulated monopoly into the competitive, and functioning, marketplace for residential DG
27 solar. In Section 5, I explain how, if it is in the public interest for TEP to enter the
28 residential DG solar industry, it could do so via a separate affiliate in a way that would

1 not virtually eliminate all competition. In Section 6, I summarize my conclusions and
2 recommendations.

3

4 **Q. Are you sponsoring any exhibits?**

5 A. Yes. I am sponsoring Ex.-EFCA-Cicchetti-1, my *Curriculum Vitae*.

6

1 **Section 2: Summary of Findings and Recommendations**

2 **Q. Would you summarize your conclusions for the Commission?**

3 A. Yes. TEP proposes to “build, own and operate” (BOO) residential DG solar as a
4 comprehensively regulated utility service that would directly compete with third-party
5 providers. TEP seeks to use utility funds, place the investment and costs of those
6 programs in its rate base, and earn a regulated return on its investment. TEP proposes to
7 eschew essentially all operating, business, finance and economic risks. This proposal
8 would create a non-level playing field that will likely eviscerate a competitive
9 marketplace and replace it with a monopoly. TEP’s proposal makes no sense from the
10 perspective of its ratepayers or the public interest. Against that backdrop, it is clear that
11 the real reason TEP is making these proposals is its apparent objective to monopolize DG
12 solar.

13 TEP’s proposed expansion of utility ownership of new rooftop and community
14 solar in Arizona would enable it to use regulation to gain an unfair advantage that almost
15 certainly will result in the elimination of the functioning and competitive DG solar
16 marketplace. TEP avoids risk and would be indifferent to the extent of penetration of
17 additional rooftop solar, which it would own and recover in regulated tariffs and rate
18 base. Rather, TEP is seeking to enlist the Commission in protecting it from competition.
19 Other proposed Tariff revisions would work to improve significantly the hand TEP would
20 deal itself. This would drive competitors from the market, and eviscerate customer
21 choice, thereby enabling TEP to maintain its monopoly. Offering a fixed annual payment
22 for electricity, or a flat rate over time for electricity, to customers who accept TEP’s DG
23 equipment on their premises or community likely will eliminate third-party solar and
24 result in TEP monopolizing the provision of DG solar in its service area.

25 TEP’s proposal is about monopolizing a market with the use of ratepayer
26 financing and accepting very little, if any, risk. This is not in the best interest of its
27 ratepayers or the public, which is apparent from the following. The TEP BOO approach,
28 using assets that TEP seeks to place in its rate base, would impose additional costs on

1 ratepayers since each dollar of rate base DG investment creates about a three-dollar
2 revenue requirement for TEP ratepayers, on a cumulative undiscounted basis. Customers
3 that select third-party rooftop solar directly pay for the DG that they install. As result,
4 TEP’s claim that its proposal would have only a *de minimis* impact on both its “fair
5 value” and revenues is incorrect. Similarly, TEP’s claim that, the impact of the program
6 on non-participating TEP customers should be of no concern to the Commission also
7 cannot withstand scrutiny.¹ In fact, TEP’s proposal would impose a far greater cost shift
8 on non-participating TEP customers than the purported cost shift associated with third-
9 party solar.

10 Moreover, the flat-rate structure contained in TEP’s existing R-10 rooftop Rider
11 and proposed R-17 Residential Community Solar Rider is plainly designed to eviscerate
12 competition in DG solar. In fact, it makes no sense otherwise. For starters, it contains no
13 incentives for customers to improve their households’ energy efficiency. To the contrary,
14 the “free” 15% aspect of the proposal that allows consumers to increase their energy
15 consumption by up to 15% without incurring a price increase would discourage energy
16 efficiency and could, all else equal, result in greater energy consumption that could
17 burden TEP’s network.

18 Importantly, TEP’s flat-rate Riders starkly contrast with TEP’s recent rate case
19 filing in Docket No. E-019335A-15-0322, where TEP has proposed to penalize new
20 rooftop solar customers by replacing its existing two-part tariff with a three-part tariff,
21 which adds demand charges for rooftop solar customers and seeks to modify NEM. The
22 contrast between TEP’s fixed flat-rate structure—subsidized by the rate base—and the
23 uncertain future of NEM, standing alone, threatens the viability of a competitive
24 marketplace in DG solar. In my opinion, the sole rationale for this energy-inefficient
25 cross-subsidy from the rate base all customers pay for the recovery “of” and “on” those
26 assets placed in rate base is TEP’s desire to eliminate competition in DG solar and
27 guarantee revenues with lower risks.

¹ Direct Testimony of Craig A. Jones, page 6, lines 2-17.

1 TEP’s real objectives are also evident in its attempt to gain the Commission’s
2 approval of a change in the current definition of “Distributed Generation” in the
3 Commission’s rules, which TEP admits would permit it to meet the Commission’s
4 residential renewable energy portfolio requirements *solely through its Residential*
5 *Rooftop and Community Solar programs without the installation of any third-party*
6 *residential DG solar in its service territory.*² This revision would enable TEP to meet
7 these requirements, if competition from rooftop third-party solar is eliminated. The
8 primary purpose for this change, which has no obvious public-interest benefit, is to
9 eliminate this potential regulatory roadblock to TEP’s desire to monopolize residential
10 DG through its community solar offering.

11 Lastly, TEP offers no regulatory, public interest, or economic efficiency rationale
12 to support the proposition that the public interest would be better served by it gaining a
13 monopoly in DG solar as opposed to allowing DG solar to continue to expand
14 competitively. Nor does TEP explain why it cannot participate in that market, assuming
15 such entry is in the public interest, through a separate subsidiary under tariffs that will
16 ensure the continuing viability of a competitive industry.

17 I thus recommend that the Commission reject TEP’s BOO residential rooftop and
18 community-based proposals.
19

² Response to STF 1.42. TEP admits that if it is granted a waiver of the 2016 residential DG requirement, “[I]t is conceivable that, under the scenario given above (5 MW of community solar and 3.5 MW of rooftop solar), the Company would be able to meet and sustain residential DG compliance within 2-3 years.”

1 **Section 3: Background: TEP's Proposed 2016 Expansion of its TEP-Owned**
2 **Residential Rooftop Solar Program, and the proposed TEP-Owned**
3 **Residential Community Solar Program**
4

5 **Q. What are the Programs for which TEP seeks approval from the Commission as part**
6 **of its 2016 REST Implementation Plan?**

7 A. It is seeking Commission approval of: (1) expansion of the TEP-Owned Residential
8 Rooftop Solar (TORS) Program; and (2) initiation of a TEP-Owned Residential
9 Community Solar Program. I will discuss each of these proposals separately.
10

11 **3.1 TEP's 2016 TORS Expansion Proposal**

12 **Q. What is TEP proposing in its 2016 REST filing concerning the TORS Program?**

13 A. In the 2016 REST filed on July 1, 2015, TEP proposed to expand its TORS Program with
14 an additional \$15 million and expanding participation for up to 1,000 additional
15 customers.³ With 6 kW per installation, this would add 6,000,000 watts at a potential
16 cost of \$2.50 per watt.
17

18 **Q. What limits did the Commission place on the scope of the TORS Program when it**
19 **approved it as part of TEP's 2015 REST Implementation Plan?**

20 A. It treated the program as a "pilot" project, limited to 600 homes and a budget of \$10
21 million.⁴
22

23 **Q. What does TEP intend to charge customers for participating in proposed rooftop**
24 **expansion?**

25 A. TEP would charge the additional participants the long-term flat per-kW charge in its
26 existing Rider R-10 that the Commission allowed to go into effect.
27

³ TEP 2016 REST Application, page 10.

⁴ ACC Decision 74884, page 7, lines 20-23. December 31, 2014.

1 **Q. Could you explain pricing under Rider R-10?**

2 A. It has several key elements, which are incorporated in contracts that each TORS Program
3 participant signs:

- 4 1. A flat-rate charge of \$16.50 per kW of solar-equivalent capacity, as
5 calculated by TEP.
- 6 2. This charge would cover all of a customer's electric usage and other TEP
7 charges, so long as the customer's total usage was neither 15% more, nor
8 15% less, than this historical usage, as calculated annually. Once the plus-
9 or-minus-15% limit is reached, "the customers' fixed rate shall be
10 recalculated based on the new annual consumption data for the most
11 recent year."
- 12 3. The flat-rate per-kW installed charge would be fixed for 25 years, unless
13 the Commission orders a revision in such pricing; and
- 14 4. A "regulatory out" provision applies, such that if the Commission
15 modifies the program or the rate for existing participants, those
16 participants may opt out of the program at no cost or penalty to the
17 participant.⁵

18

19 **Q. Could you explain how TEP states it will calculate the equivalent solar capacity to
20 which the per-kW charge is applied?**

21 A. TEP claims it charges customers a fixed energy rate that is "roughly equivalent" to the
22 customer's "historical average energy consumption."⁶ This would be tantamount to an
23 initial breakeven billing target, or no expected reductions in participating customers'
24 bills, in year one.

25 TEP proposed that it would install a rooftop solar system and effectively achieve
26 a "net zero" status, which hypothetically offsets any excess generation sales, which the
27 customer does not consume on her premises. That is, TEP would perform a simplistic

⁵ ACC Decision 74884, page 18, line 27 through page 19, line 6. December 31, 2014.

⁶ TEP 2015 REST Application, page 8.

1 calculation to determine the number of installed kW that it assumes would be needed to
2 provide *all* of a customer's energy, averaged over the course of a customer's prior billing
3 year.⁷
4

5 **Q. In your opinion, is such a calculation reasonably viable?**

6 A. No. I do not believe such a calculation is reasonably viable. As explained in Section 4.2,
7 below, such a calculation is a theoretical construct that is disconnected from the actual
8 DG solar system installed on a customer's rooftop and the output that would occur from
9 that system at that location over a specific calendar year.
10

11 **Q. Does TEP intend to make communications links with the energy management**
12 **system that is being developed as part of the TORS Program available to customers**
13 **who have smart inverters on their own rooftop systems?**

14 A. Apparently not. TEP states that it is developing a network management interface and
15 communications system for "Company-owned inverters." TEP states that this system has
16 benefits to the company generally, "and, as such, will be paid for and recovered through
17 traditional utility rate-making procedures."⁸ TEP also does not explain why this same
18 network management interface system could not or would not be available to customers
19 that install DG systems that third-party suppliers would provide.
20

21 **3.2 TEP's Residential Community Based Solar Program**

22 **Q. What is your understanding of TEP's proposed Residential Community Solar**
23 **Program?**

24 A. In the 2016 REST, TEP proposed a new Residential Community Solar Program.
25 According to TEP, this "will provide customers with more options for going solar, while
26 enabling the Company to build more cost-effective utility-scale community solar

⁷ Apparently based on an assumption of 1,900 kWh/kW, Tilghman Direct Testimony, page 7, line 7,

⁸ TEP Response to 2014 DR STF 1.21.

1 facilities.”⁹ As part of this program, TEP initially proposes to construct a single 5 MW
2 community-based solar facility for multiple retail customers in the same community.
3 This community-based facility would be connected to its distribution grid. TEP also
4 proposes to place the \$10 million cost of this investment into its rate base.¹⁰
5

6 **Q. Does TEP propose to make this program available to all TEP ratepayers?**

7 A. No, it does not. The Residential Community Solar Program will be limited.
8

9 **Q. How would this work and what would subscribers to TEP’s Residential Community
10 Solar Program be charged for their electricity?**

11 A. The pricing provisions are found in TEP’s proposed Rider R-17, which is based on the
12 same flat rate per kW installed using a similar hypothetical calculation of solar-equivalent
13 capacity. The Rider R-17 is available to customers who otherwise are, or might be,
14 customers of third-party DG solar because they are eligible for net metering under TEP’s
15 Rider R-4.¹¹ TEP’s Rider R-17 has the following differences:

- 16 1. The fixed contract with retail customers would be 10 years, not 25 years.
- 17 2. The constructed per-kW installed charge would be \$17.50 per kW for
18 capacity to calculate the fixed billing amount or rate, rather than the
19 \$16.50 per kW used for the TEP-Owned Residential Solar Program.
- 20 3. There is no option for the customer to purchase the system as there is for
21 TEP’s individual rooftop installations.
- 22 4. The customer would pay an early termination fee based on the number of
23 months remaining on the contract if the customer departs. TEP avers that
24 the capacity made available by a terminating customer would be available

⁹ TEP 2016 REST Application, pages 10-11.

¹⁰ TEP 2016 REST Application, page 18.

¹¹ TEP 2016 REST Application, page 21, Rider R-17, Residential Community Solar Program.

1 to other customers, but does not explain if such secondary sales would
2 affect the termination fee.¹²
3

4 **Q. Do your concerns regarding TEP's use of a "net-zero" calculation in the TORS**
5 **Program apply to the use of a "net-zero" calculation in Rider R-17?**

6 A. Yes. TEP states that it would use precisely the same methodology, so my analysis of the
7 flaws and fallacy of such calculation are the same.
8

9 **Q. Does TEP request a rule change so that its Residential Community Solar Program**
10 **will be considered "residential DG" under the Commission's rules?**

11 A. Yes, TEP claims, "DG should not be confused with, or associated with, the idea that it
12 must be customer owned, behind the meter, limited in size, or even tied to a specific
13 load."¹³ TEP thus suggests modifying and expanding the definition of DG to electric
14 generation sited on a customer premises or directly connected to the Company's
15 distribution system.¹⁴ Assuming the Commission grants TEP's requested expanded
16 definition of DG, TEP proposes to build a utility-owned solar facility that would be
17 connected to the distribution grid and would serve multiple customers throughout TEP's
18 contiguous service territory. Residential customers who signed up for the service would
19 be served from the solar facility and billed using TEP's new Residential Community
20 Solar tariff, Rider R-17.
21

22 **Q. Does TEP intend to expand the scope of those eligible to participate in its**
23 **Residential Community Solar Program beyond those already eligible to obtain**
24 **rooftop solar?**

25 A. No. Proposed TEP Rider R-17 limits participation in the program only to customers
26 eligible for net metering under its Rider R-4. The result is to exclude those who live in

¹² TEP 2016 REST Application, pages 19-20.

¹³ TEP 2016 REST Application, pages 13-15.

¹⁴ TEP 2016 REST Application, pages 15-16.

1 individually-metered multiunit developments, such as condominium owners, from
2 participating.

3
4 **Q. What is TEP’s explanation for this limitation?**

5 A. It doesn’t provide one. It simply states that community solar contracts are tied to a
6 “service point” and that tenants, including business tenants, “would not be allowed to
7 obligate the specific service point.”¹⁵

8
9 **Q. Does this justification have merit?**

10 A. No. Aside from the fact that condominium owners seemingly could obligate their units,
11 TEP might solicit building owners to allow their tenants to participate, if any such
12 consent were necessary in individual cases. Moreover, the fact that some subscribers
13 may wish to terminate in less than 10 years would not pose a financial problem for TEP
14 or its other customers. Since a participant can terminate the program in a flexible
15 manner, capacity assigned to one subscriber easily can be reassigned to another
16 subscriber. According to TEP, “under the newly proposed community solar program the
17 customer contract is virtual, and the system does not have to be physically removed
18 should the customer elect[] to terminate the contract. This allows for the ‘returned’
19 capacity to be reassigned to another customer wishing to participate in the program.”¹⁶

20
21 **Q. In that light, what do you conclude is the underlying purpose of limiting TEP’s
22 Residential Community Solar Program to customers otherwise eligible for net
23 metering under Rider R-4?**

24 A. I conclude that the purpose of the limitation is to target TEP’s community solar offering
25 at potential customers of third-party rooftop solar providers. As such, the limitation is
26 another element—along with expansion of the TEP-owned rooftop program and

¹⁵ Tilghman Direct Testimony, page 23, line 25 to page 24, line 1.

¹⁶ TEP response to Staff DR 1.33.

1 restructuring of rates for net-metering customers—that seems to be intended to prevent
2 third-party rooftop solar providers from competing with TEP in its service territory.

3

4

1 **Section 4: Why TEP’s Proposed Expansion of the TEP-Owned Residential**
2 **Solar Program and Initiation of the TEP-Owned Residential**
3 **Community Solar Proposal Should Be Rejected**

4 **Q. Please explain the basis for your conclusion that the Commission should reject**
5 **TEP’s TORS Expansion and Proposed Residential Community Solar Programs.**

6 A. TEP does not wish to accept the threat that competition may take away customers and
7 sales, and cause it to lose income. TEP’s proposals are, first and foremost, nothing more
8 than the central component of a TEP effort to exploit its rate-of-return regulated
9 monopoly in the provision of electricity to eliminate competition in DG solar, and likely
10 to blunt its growth. This is apparent from the fact that TEP’s proposals are plainly
11 contrary to the interests of its ratepayers and will, if approved, discourage energy
12 efficiency. As a basis for this conclusion, I focus on four issues:

13 First, TEP proposes to shift the costs and risks of DG solar to its ratepayers, at a
14 long-term cost to ratepayers that will far exceed the supposed “cost shift” from third-
15 party solar that it claims to seek to avoid.

16 Second, TEP’s flat-rate fixed-payment plans for up to 25 years—and 15% usage
17 bands—make sense only in the context of its strategy to monopolize DG solar because
18 the proposal cannot be justified from the standpoint of rational ratemaking.

19 Third, TEP’s intent to exclude competitors is further demonstrated by two things:
20 (1) third-party DG systems are denied access to TEP’s proposed network management
21 interface; and (2) TEP’s admission that its intended program growth is open-ended and
22 its proposed DG rules changes would enable it to meet all of its residential DG renewable
23 energy standard obligations without any third-party DG.

24 Fourth, because TEP proposes no rules to enable third-party participation in
25 community solar, TEP’s proposal is not in the public interest and should be rejected.

1 **4.1** *The REST Proposals' Shift of Costs and Risks to Ratepayers*

2 **Q.** **Could you explain the "three-for-one" rule of regulation?**

3 A. I learned as a young regulator that for every \$1 of prudent capital investment, the utility's
4 regulated revenue requirements would typically require customers to pay \$3 over the life
5 of the investment to return both the original investment through depreciation expenses
6 and return "on," and income taxes for, the non-depreciated portion over the life of the
7 investment. In contrast, if a utility expensed the \$1 cost of a high efficiency light bulb
8 that it installed in someone's home, the cost recovery would be \$1, not \$3 over the useful
9 life of the light bulb.

10
11 **Q.** **How could \$1 invested in BOO DG solar cause ratepayers to pay about \$3 over the**
12 **life of the project financed through TEP's cost of service?**

13 A. A simple example based on a 25-year recovery of the investment cost will demonstrate
14 the concept. Assume that a utility invests \$1,000,000; further assume that the utility
15 annually recovers 1/25th of its investment through (straight-line) depreciation, and earns a
16 12% return grossed up for taxes on the amount remaining in rate base using annual
17 straight-line depreciation.

18
19 **Q.** **Why is this significant?**

20 A. It is important to recognize that by investing in rooftop solar directly and seeking to place
21 those investments in its rate base, TEP would obligate its ratepayers to a stream of
22 revenue requirements for some 25 years. This contrasts with customer-provided rooftop
23 solar, which relies on participating customer financing, not TEP rate base financing.
24 Accordingly, to accomplish the same penetration of DG through customer-owned rooftop
25 DG solar, TEP would spend much less, if anything.

- 1 Q. What does the following table demonstrate?
- 2 A. It demonstrates the three-for-one rule and shows that a regulated utility would need to
- 3 collect \$2,560,000 in revenue over 25 years for each \$1,000,000 invested. .

Principal Amt:	\$	1,000,000
Rate of Return:		12.00%
Number of Years:		25

Straight Line

Year	Principal at Beginning of Year	Payment of Principal (Return of Investment)	Annual Return (Return on Investment)	Return of and on Investment
1	\$ 1,000,000	\$ 40,000	\$ 120,000	\$ 160,000
2	\$ 960,000	\$ 40,000	\$ 115,200	\$ 155,200
3	\$ 920,000	\$ 40,000	\$ 110,400	\$ 150,400
4	\$ 880,000	\$ 40,000	\$ 105,600	\$ 145,600
5	\$ 840,000	\$ 40,000	\$ 100,800	\$ 140,800
6	\$ 800,000	\$ 40,000	\$ 96,000	\$ 136,000
7	\$ 760,000	\$ 40,000	\$ 91,200	\$ 131,200
8	\$ 720,000	\$ 40,000	\$ 86,400	\$ 126,400
9	\$ 680,000	\$ 40,000	\$ 81,600	\$ 121,600
10	\$ 640,000	\$ 40,000	\$ 76,800	\$ 116,800
11	\$ 600,000	\$ 40,000	\$ 72,000	\$ 112,000
12	\$ 560,000	\$ 40,000	\$ 67,200	\$ 107,200
13	\$ 520,000	\$ 40,000	\$ 62,400	\$ 102,400
14	\$ 480,000	\$ 40,000	\$ 57,600	\$ 97,600
15	\$ 440,000	\$ 40,000	\$ 52,800	\$ 92,800
16	\$ 400,000	\$ 40,000	\$ 48,000	\$ 88,000
17	\$ 360,000	\$ 40,000	\$ 43,200	\$ 83,200
18	\$ 320,000	\$ 40,000	\$ 38,400	\$ 78,400
19	\$ 280,000	\$ 40,000	\$ 33,600	\$ 73,600
20	\$ 240,000	\$ 40,000	\$ 28,800	\$ 68,800
21	\$ 200,000	\$ 40,000	\$ 24,000	\$ 64,000
22	\$ 160,000	\$ 40,000	\$ 19,200	\$ 59,200
23	\$ 120,000	\$ 40,000	\$ 14,400	\$ 54,400
24	\$ 80,000	\$ 40,000	\$ 9,600	\$ 49,600
25	\$ 40,000	\$ 40,000	\$ 4,800	\$ 44,800
Sum				\$ 2,560,000

4

5

1 **Q. Do TEP's proposals shift risk to ratepayers in other ways?**

2 A. Yes. Most significantly, TEP's other ratepayers may face the burden of the cost of
3 providing electricity to subscribers who increase their consumption of electricity by no
4 more than 15%, with no increase in payments of TEP. (Of course, the size of their
5 rooftop systems will not increase to offset this consumption.) Further, because of the
6 fixed long-term contracts that will insulate TEP DG solar customers from subsequent rate
7 increases that may occur over time, other TEP rate payers may be required to absorb
8 those costs as well. Finally, other TEP ratepayers would have to bear the risk of the cost
9 associated with the "regulatory out," described above, if this causes a rooftop solar
10 system to be removed from a subscriber's roof at TEP expense and with the remaining
11 value of the system written off.

12

13 **Q. Are you suggesting that TEP's proposal could burden other ratepayers that do not**
14 **adopt solar more than TEP claims the current third-party solar model based on net**
15 **metering does?**

16 A. Yes. This is because of the so-called "cost shift" related to rate base cost recovery for
17 TEP's BOO programs. TEP proposes to fix its arrangement for up to 25 years.
18 Nevertheless, the tariffs covering other DG solar customers may be changed in future rate
19 cases.

20

21 **Q. Does the above analysis undercut TEP's argument that use of TEP-owned DG solar**
22 **is in ratepayers' interest because it helps minimize the "Lost Fixed Cost Recovery"**
23 **burden it claims is shifted to non-DG customers from customers who provide their**
24 **own DG?**

25 A. Yes. TEP claims that utility-owned DG solar would protect TEP and, by implication, its
26 other retail customers from a loss of revenue used to pay for fixed costs.¹⁷ However, as
27 set out above, TEP's plans create significant long-term revenue requirements, a resultant

¹⁷ TEP Application for Approval of its 2016 Renewable Energy Standard and Tariff Implementation Plan, Exhibit 6, Rider R-8, Lost Fixed Cost Recovery (LFCR) Mechanism – Distributed Generation.

1 loss of revenue, and shift significant risks to ratepayers. Since these shifts are worse than
2 the supposed cost shift that TEP alleges for net metering, TEP's claims that such
3 outcomes serve the interests of ratepayers because they enable TEP to protect its non-DG
4 customers from cost shifts created by net metering ring hollow and should be
5 disregarded. Indeed, TEP admits that even under its TOR rooftop program "there is still
6 a cost-shift ... from participants to non-participants. This cost shift is approximately
7 \$0.02/kWh."¹⁸

8
9 **Q. Even if such cost-shift concerns had a factual basis, would they be relevant to this**
10 **proceeding?**

11 A. No they would not. The Commission currently is addressing the structure of TEP's rates,
12 including its net-metering Riders, in Docket E-01933A-0322. The outcome of that
13 proceeding will determine the rate structure applicable to DG solar customers. There is
14 no need for TEP to spend funds it intends to charge to ratepayers for investments with a
15 25-year recovery period to "solve" a claimed problem that will be directly addressed by
16 the Commission later this year.

17
18 **Q. Are you saying that the issue of "cost shifts" from DG solar—if they exist—should**
19 **be addressed solely through the rate case mechanism and that the rationale (or lack**
20 **thereof) for TEP's effort to expand its rate base monopoly into the competitive**
21 **distribution DG solar marketplace should be addressed apart from TEP's cost-**
22 **shifting claims?**

23 A. Precisely.
24
25

¹⁸ Carmine Tilghman Direct Testimony, page 9, lines 4-6.

1 **4.2** *TEP's Flat-Rate Riders Make Sense Only as an Element of a Strategy to Monopolize*
2 *DG Solar That Includes Changing the Tariffs for Net-Metering Customers*

3 **Q.** **Is it your opinion that the flat-rate fixed monthly payment for up to 25 years makes**
4 **sense only as a strategy to monopolize?**

5 **A.** Yes.

6
7 **Q.** **Can you explain why?**

8 **A.** Both rooftop Rider R-10 and proposed community solar Rider R-17 make an offer of flat-
9 rate electricity bills and electricity prices for 25 and 10 years, respectively. Unless the
10 “regulatory out” provision is subsequently triggered, TEP’s Riders guarantee that the
11 subscriber will never pay more for electricity for many years. This is so even if the
12 customer’s electricity usage increases by up to 15%, even if the customer consumes this
13 increased usage in late summer afternoons when energy demand is at its peak and solar
14 output is decreasing. This is simply not rational pricing policy, either for a utility or its
15 ratepayers. The only conceivable, rational explanation is that TEP’s objective is to make
16 a pricing proposition to consumers interested in solar that will foreclose customer interest
17 in solar from any other provider—thus preserving TEP’s monopoly position as a supplier
18 of electricity.

19
20 **Q.** **What risks to TEP’s ratepayers does the flat-rate structure create?**

21 **A.** Under the REST proposal for the DG that TEP would own, suppose Customer A
22 previously paid \$100 per month for her share of the traditional utility’s cost and
23 consumes 1,000 kWh per month. Now assume that this same customer permits TEP to
24 install rooftop solar on her premises that produces 1,000 kWh per month. Under TEP’s
25 proposal, she would pay no more than she currently pays, 10 cents per kWh, as long as
26 her usage does not change plus or minus 15%. If TEP’s costs increase during the fixed
27 25-year term, she does not pay more. If rooftop solar costs more than other TEP
28 alternatives, all retail customers pay more for TEP’s BOO alternative. All other

1 customers would also pay more for the guarantee of no price increase the customer gets
2 for permitting TEP to install rooftop solar to her premises.

3
4 **Q. Do you believe TEP's "net-zero" concept matches the reality of the expected output
5 of a TEP-provided solar system and a customer's consumption of that output?**

6 A. No. TEP's calculations assume TEP installs a system that does not exist, which would
7 produce and/or store electricity that precisely matched consumption over the course of a
8 calendar year. In effect, there would be no excess energy or any times when the customer
9 would require the utility system to meet her load requirements. In reality, there is no
10 commitment that the size of the system that TEP installs will actually match the kW's of
11 capacity for which the customer is being charged. Indeed, TEP admits that the actual
12 systems it installs may not match the hypothetical systems on which the hypothetical
13 calculation of the number assigned for installed kW is based. TEP agrees that "each
14 participating customer's PV system ... must also be designed within a limited capacity
15 range on the customer's usage to mitigate the Company's concerns with reverse power
16 flow."¹⁹ Importantly, the fact that TEP proposes to integrate its BOO solar facilities with
17 the full utility system effectively makes the system's size and output irrelevant. The
18 Riders are just pricing or tariff arrangements—and the physical source of the electricity
19 being delivered is irrelevant. TEP seeks to offer a contract for multiple years that would
20 insure it will keep its authorized revenue, and that competitors will be seriously
21 disadvantaged.

22
23 **Q. In your opinion, what is the real purpose of this construct?**

24 A. Since the concept of "net zero" pricing is a regulatory and engineering fiction, its real
25 purpose is to eliminate competition in DG solar and unfairly preserve utility market
26 shares and earnings.

27

¹⁹ Direct Testimony of Carmine Tilghman, page 14, lines 10-14.

1 **Q. How will it do that?**

2 A. This regulatory fiction is designed to justify flat-rate pricing that would, as I explained
3 above, be subsidized by TEP's other non-solar ratepayers and promote energy
4 inefficiency. In stark contrast to flat-rate, "net zero" pricing, TEP seeks tariff changes,
5 discussed below, that undermine the value of third-party DG product offerings. In the
6 tariff TEP proposes to apply to competitors, TEP stresses residence-specific usage and
7 demand details and exaggerates the importance of uncertainty and lack of control from a
8 complex utility operating perspective. At the same time, TEP relies on unrealistic
9 assumptions for the DG installations that it would supply to similar residential customers.
10 TEP's approach is based on tariffs that reflect assumptions that exist in a virtual sense,
11 not in the reality of what TEP actually proposes to install under its expanded DG
12 programs. The contrast between this approach and the pricing it proposes for third-party
13 solar only makes sense in the context of TEP's objective to monopolize DG solar and
14 create a playing field that is not level and distinctly favors TEP.

15
16 **Q. In this context, what do you consider to be the purpose of TEP's Rider R-10 and
17 Proposed Rider R-17?**

18 A. They appear to be means by which TEP can attract residential customers to DG solar—
19 but only if TEP builds, owns, and operates the DG solar.

20
21 **Q. How will TEP attract a growing number of customers when it states that such
22 customers will not save money with respect to their current existing electric bills?**

23 A. TEP expressly intends the Riders to provide rate stability to customers for a period of 25
24 years (rooftop) or 10 years (community) and, not coincidentally, to do so while it is
25 requesting tariff and net-metering changes (described below) that are intended to
26 undercut the value proposition of DG solar. In contrast, so long as a customer stays
27 within the Riders' plus-or-minus-15% range, a customer can predict his or her monthly
28 electric bill for years to come—and TEP guarantees that it will remove the rooftop

1 system at no expense and return the customer to its normal rate schedules—should the
2 Commission order changes in the fixed monthly amount, or per-kW changes, applicable
3 to the customer. Regardless, competitive third-party solar providers cannot compete
4 because the initial fixed rates for TEP’s DG programs are subsidized and included in the
5 rate base. This results in an inequitable risk and cost shift that I described above.
6 Accordingly, no third-party provider could possibly compete with this offer. The
7 anticompetitive nature of this proposal is further reinforced by the rate uncertainty that
8 TEP’s recent net-metering proposals have introduced in the marketplace for third-party
9 solar providers. When consumers compare TEP’s flat-rate fixed billing to the amount
10 third-party DG rooftop solar customers pay for electricity while still remaining subject to
11 TEP’s uncertain future tariffs, they are likely to opt for TEP’s flat-rate pricing. This also
12 assumes that third-party competitive suppliers remain in the market.

13
14 **Q. In addition to these anticompetitive effects, do the Riders’ structures raise**
15 **important public policy issues related to the promotion of efficient use of electricity?**

16 A. Yes. Most importantly, by providing electricity at a flat rate, within the 15% margin, the
17 Riders provide no penalty for increased usage up to that limit, nor any incentive for
18 energy efficiency of up to 15%. Moreover, the Riders’ per kW charge provides no
19 incentive for users of TEP’s BOO systems to shape their usage patterns to minimize peak
20 demand on TEP’s network. This is true even, for example, at times of day, such as late
21 summer afternoons, when, as TEP officials frequently state, solar PV begins its decline.

22
23 **Q. Do the Riders also violate the Commission’s rules?**

24 A. Yes, they do. I am advised that, under the Commission’s Rule R14-2-1606(C)(2),
25 utilities must offer their standard-offer services on a “bundled-unbundled” basis. The
26 tariff must be a bundle of the individual elements of a utility’s charges, such as a flat-rate
27 connection charge and per kWh charges for various types of usage, or, as TEP is
28 proposing, demand charges based on a customer’s kW demand during a specified usage

1 period—theoretically permitting substitution of elements of those services if they can be
2 provided competitively. The Rider R-10 and Rider R-17 tariffs do not vary with time of
3 use or TEP operating conditions. In effect, the Riders are “bundled-bundled” offerings.
4 There are no meaningful or useful price signals that would encourage users to shift use to
5 less costly time periods because TEP’s BOO DG customers pay the same price per kWh
6 regardless of TEP’s avoided costs.

7
8 **Q. Can you further explain what you mean by the rate uncertainty that TEP is**
9 **proposing for third-party DG solar?**

10 **A.** Yes. TEP has proposed changes in its recent rate case filing that would increase the
11 relative costs and reduce the relative benefits for residential customers who lease or
12 purchase their own rooftop DG solar systems from third parties. These tariff changes
13 would curtail, if not eliminate, the expansion of rooftop solar that third parties compete to
14 install.

15
16 **Q. What are the changes in tariffs that TEP proposes?**

17 **A.** In its October 5, 2015 tariff filing in Docket E-01933A-15-0322, TEP proposed to change
18 the current NEM tariff (Rider R-4) for new DG solar customers with a new NEM tariff
19 (Rider R-15). As part of Rider R-15, TEP is also proposing a three-part tariff that would
20 be mandatory for all new users of DG systems and other partial requirements customers
21 and would be optional for non-DG customers.²⁰ The three parts would consist of: (1) a
22 Basic Service Charge, which would increase from \$10 to \$20 per month,²¹ (2) Demand
23 Charges, and (3) Energy Charges.²² (I understand similar tariffs proposed in the UNS-
24 Electric rate case are in the midst of a hearing process and may be subject to revision.
25 However, I will address TEP’s proposal as filed.)
26

²⁰ TEP Rate Case, Direct Testimony of David Hutchens, page 18, lines 23-25.

²¹ TEP Rate Case, Direct Testimony of Dallas J. Dukes, page 4, lines 15-17.

²² TEP Rate Case, Direct Testimony of Dallas J. Dukes, page 16, lines 16-21.

1 **Q. How would the demand charge affect DG customers?**

2 A. The demand charge will be based on the 1-hour maximum measured demand during the
3 billing month. This is designed to reward those higher-use customers who have higher
4 average monthly load factors. The lower-usage customers with lower load factors—such
5 as rooftop DG customer—will experience bill increases under the three-part rate.²³

6
7 **Q. Would subscribers to TEP's solar programs have to pay such demand charges?**

8 A. No. Customers taking service under Riders R-10 and R-17 would continue to pay their
9 flat-rate charges and would not have to pay the demand charge.

10
11 **Q. Does TEP intend to apply its new rates to certain DG customers even if their
12 applications were approved prior to the Commission's decision in its rate case?**

13 A. Yes. While NEM customers whose applications were approved by June 1, 2015 are
14 grandfathered and will remain on the existing Rider R-4, TEP intends that net-metering
15 customers who submitted applications after June 1, 2015 would take service under a new
16 Rider R-15.²⁴

17
18 **Q. Can you summarize the likely impact of TEP's flat-rate pricing on competition in
19 DG solar?**

20 A. Yes. TEP's proposal likely will undermine competition and discriminate against
21 customers who seek to own or lease their DG solar from competitive third-party vendors.
22 TEP will offer special access terms and charge higher prices to new customers who
23 choose competitors. TEP proposes to end current NEM tariffs for new DG solar
24 customers, tariffs that currently recognize that any excess generation distributed solar
25 customers produce and do not consume in real time during a month is "parked" or
26 "banked" with TEP as a credit against future TEP energy billings. Under proposed Rider

²³ TEP Rate Case, Direct Testimony of Dallas J. Duker, page 25, lines 20-21.

²⁴ TEP Rate Case, Direct Testimony of Carmine A. Tilghman, page 10, lines 21-24.

1 R-15, the utility seeks to redefine this electricity as a sale for which it proposes to pay
2 less than the price for which TEP can resell any excess.

3 TEP's proposed changes would create an unfair, non-level playing field that
4 would negatively affect the ability of third-party providers of PV panels and related
5 systems to compete with TEP. It would also adversely undermine the value of such
6 systems for retail customers. As I explained above, once in its rate base, for every \$1
7 invested over the life of a TEP DG project, TEP would collect about \$3 from its captive
8 ratepayers, creating a cost and risk shift from solar to non-solar customers that far
9 exceeds the supposed cost shift that has motivated its attempt to restructure net metering.
10

11 **4.3 TEP's Intent to Use Its TOR and Community Solar Offerings as Ongoing Programs**
12 **that Permit It to Meet All of Its RES Residential DG Solar Obligations Without the**
13 **Existence of Third-Party Solar**

14 **Q. Is it your opinion that TEP regards its TORS program as a "pilot" program?**

15 **A.** No. TEP states that it considers its rooftop program to be an ongoing program.
16 However, because it recognizes that the Commission held that its first 600-home program
17 was a "pilot program," it is seeking the Commission's approval for the 1000-home
18 expansion. Indeed, it suggests the Commission remove the limitation on the number of
19 homes that can participate in the Program.²⁵
20

21 **Q. Is it your opinion that TEP regards its TORS Program as a Research and**
22 **Development Program?**

23 **A.** No. It states that the intent of the project is not R & D. Instead, TEP states that it has
24 become a member of the advisory committee established by Arizona Public Service for
25 its 1,500-home rooftop solar project and will have access to the results of the research
26 and development efforts associated with it.²⁶
27

²⁵ TEP Response to DR STF 1.25.

²⁶ TEP Response to DR STF 1.21(b).

1 **Q. Is it your opinion that the Commission should approve TEP's request in order to**
2 **enable TEP to meet its residential Renewable Energy Standard (RES) obligations?**

3 A. No. TEP can, and should, meet its RES requirements through reliance on DG provided
4 by a competitive DG industry, not through reliance on TEP-owned DG resources.
5

6 **Q. What is your understanding of TEP's argument that the RES standard supports its**
7 **TEP-owned approach?**

8 A. The Commission has promulgated rules that require to it to achieve an RES electricity
9 usage of 15% from residential DG by 2025 (6% in 2016) and provided a measurement
10 system based on approved Renewable Energy Credits (REC).²⁷ The Rule specifies the
11 amount of RES that must come from residential DG solar.

12 Before 2013, TEP acquired the RECs from residential DG solar in exchange for
13 TEP's direct financial support. The Commission effectively ended residential DG solar
14 incentives after 2013.

15 TEP claims that the loss of RECs from the growth in RES related to DG solar
16 needs to be replaced with a new system of utility-owned and financed DG solar. TEP
17 avers,

18 However, since the Company no longer pays incentives necessary
19 to acquire RECs from qualifying DG projects, it will not have an
20 adequate number of RECs necessary to meet the REST
21 requirements for 2016 related to the residential DG carve-out
22 provision of A.A.C. R14-2-1805 (D). TEP does have enough
23 projects associated with RECs to meet the non-residential DG
24 carve-out provision.²⁸
25
26

²⁷ ACC Decision No. 69127, Appendix A, R14-2-1804 (A) and (B) - Annual Renewable Energy Requirement, pages 11-12. One REC is created for each kWh derived from an Eligible Renewable Energy Resource (R-14-2-1803 (A)).
²⁸ TEP Application for Approval of its 2016 Renewable Energy Standard and Tariff Implementation Plan, page 21.

1 **Q. What is TEP requesting as a result of this situation?**

2 A. TEP is asking for a waiver of the residential DG requirement.²⁹ TEP also proposes to
3 change the existing RES tariffs to increase the opportunities for utility-owned and
4 distributed solar generation in two ways. First, TEP proposes to relax the requirement
5 that DG solar must be on customers' premises and to permit renewable resources
6 connected directly to a utility's distribution network to be treated as "Distributed
7 Generation" under the RES rules.³⁰ Second, TEP proposes to combine customers into
8 community-based solar systems, which would serve multiple residential customers.³¹

9
10 **Q. Do you believe TEP can consider DG resources supplied by third parties in meeting
11 its residential DG requirements?**

12 A. Yes. In Decision 74882, issued December 31, 2014, the Commission revised Arizona
13 Administrative Code R14-2-1812(C). Under that subsection "The Commission may
14 consider all available information and hold a hearing to determine whether an Affected
15 Utility's compliance report satisfied the requirements of the rules." (Emphasis added.)
16 Thus, in my opinion, the Commission may now consider information with respect to all
17 residential DG solar within a utility's service territory when determining whether the
18 utility is compliant with the RES requirements.

19
20 **Q. Does TEP intend to rely on the waiver process or consider residential DG resources
21 provided by third parties?**

22 A. No. TEP claims that it has an obligation to meet the RES requirement without waivers or
23 reliance on DG provided by third parties:

24 The Company does not believe it should design its REST
25 implementation plan with an ongoing expectation to receive a

²⁹ TEP Application for Approval of its 2016 Renewable Energy Standard and Tariff Implementation Plan, page 21.

³⁰ TEP Application for Approval of its 2016 Renewable Energy Standard and Tariff Implementation Plan, pages 17-18.

³¹ TEP Application for Approval of its 2016 Renewable Energy Standard and Tariff Implementation Plan, pages 17-18.

1 waiver of the applicable REST requirements in a given year at
2 no cost. The RPS is very explicit in its requirements that an
3 Affected Utility must file a plan that describes how it intends to
4 comply with the rules set forth in the RPS, and how the
5 Affected Utility will satisfy the Annual Renewable Energy
6 Requirement through the use of obtaining REC[*s*].
7

8 The use of a waiver is neither guaranteed, nor does it alleviate
9 the Company from its responsibilities of submitting a plan for
10 Commission approval that shows how the Company intends to
11 meet the requirements of the RPS.³²
12

13 **Q. Why is this response troubling in the context of the TEP-owned solar proposals**
14 **contained in TEP's Plan?**

15 A. It is troubling because TEP admits the objective of its REST Plan is to permit it to meet *all*
16 of its RES requirements for residential DG solely through TEP-owned DG:
17

18 Assuming the Commission adopts the Company's proposal
19 using Community Solar to meet the Company's DG
20 requirement, the Company would be able to use this program
21 for compliance and it would move TEP closer to meeting the
22 REST residential DG requirement. ...
23

24 The RPS requirement is currently increasing at a rate of 1%
25 annually (6% in 2016, 7% in 2017, etc.). For TEP, this
26 translates into an annual increase in its residential DG
27 requirement of approximately 14,500 MW, or roughly 7.5 MW
28 of solar capacity. It is conceivable that, under the scenario
29 given above (5 MW of community solar and 3.5 MW of
30 rooftop solar), the Company would be able to meet and sustain
31 residential DG compliance within 2-3 years.³³
32

³² TEP Response to Staff DR 3.1(e).

³³ TEP Response to Staff DR 1.42.

1 **Q. In other words, TEP could use its proposed REST Plan and changes to tariffs**
2 **applicable to net-metering customers to drive all third-party DG solar from its**
3 **service territory and still meet its residential DG RES requirements?**

4 A. Exactly.

5
6 **4.4 *TEP's Use of the Community Solar Program Both to Foreclose Third-Party Rooftop***
7 ***DG and Create a Community Solar Monopoly.***

8 **Q. Are there any other aspects of TEP's Community Solar plan that reinforce your**
9 **conclusion that the sole purpose of the REST proposal is to monopolize DG solar?**

10 A. Yes. TEP has no plans to expand the scope of those eligible to participate in its
11 community solar program beyond those currently eligible to obtain rooftop solar. In this
12 regard, Proposed TEP Rider R-17 limits participation in the program only to customers
13 eligible for net metering under its Rider R-4. The result is to exclude those who live in
14 individually metered multiunit developments, such as condominium owners, from
15 participating.

16
17 **Q. Why do you consider this significant?**

18 A. If TEP was truly trying to ameliorate the supposed cost shift created by third-party solar,
19 and deliver solar more efficiently, it would have expanded the scope of the program to
20 customers who are less likely to purchase third-party solar today. There is no technical
21 impediment to it doing so. That TEP, nonetheless, is not proposing to do that strongly
22 suggests that its sole motivation is to drive out competition from DG solar in order to
23 protect utility revenue and earnings. The solution, however, is not for TEP to remove this
24 limitation with respect to which customers are eligible to participate, but to enable third-
25 party community solar providers to meet this need by taking steps to remove any
26 impediments for them.

27

28

1 **Q. What is TEP's explanation for this limitation?**

2 A. It does not provide one. It simply states that community solar contracts are tied to a
3 "service point" and that tenants, including business tenants, "would not be allowed to
4 obligate the specific service point."³⁴

5
6 **Q. Does this justification have merit?**

7 A. No. Aside from the fact that condominium owners seemingly could obligate their units,
8 TEP might solicit building owners to allow their tenants to participate, if any such
9 consent were necessary in individual cases. Moreover, the fact that some subscribers
10 may wish to terminate in less than 10 years would not pose a financial problem for TEP
11 or its other customers. Since a participant can terminate the program in a flexible
12 manner, capacity assigned to one subscriber easily can be reassigned to another
13 subscriber. According to TEP, "under the newly proposed community solar program the
14 customer contract is virtual, and the system does not have to be physically removed
15 should the customer elect[] to terminate the contract. This allows for the 'returned'
16 capacity to be reassigned to another customer wishing to participate in the program."³⁵

17
18 **Q. In that light, what do you conclude is the underlying purpose of limiting TEP's**
19 **Residential Community Solar Program to customers otherwise eligible for net**
20 **metering under Rider R-4?**

21 A. I conclude that the purpose of the limitation is to target TEP's community solar offering
22 to potential customers of third-party rooftop solar providers. As such, the limitation is
23 another element—along with expansion of the TEP-owned rooftop program and
24 restructuring of rates for net-metering customers—that seems to be intended to prevent
25 third-party rooftop solar providers from competing with TEP in its service territory.
26

³⁴ Direct Testimony of Carmine Tilghman, page 23, line 26 to page 24, line 1.

³⁵ TEP response to Staff DR 1.33.

1 **Q. Does TEP believe that third parties should be allowed to provide community solar**
2 **projects in its service territory?**

3 A. No. TEP states that third-party provision of third-party solar offerings would require
4 TEP or the Commission to establish virtual net metering or virtual wheeling mechanisms.
5 Because no such arrangements *currently* exist, TEP states that the Commission should
6 permit TEP to be the monopoly provider of community solar in its service territory.³⁶
7

8 **Q. Are there any examples of the monopoly provision of utility-owned community solar**
9 **under the flat-rate tariff TEP is proposing?**

10 A. No. TEP admits that “[t]o the best of TEP’s knowledge, there are no community solar
11 programs in the nation similar to [the] program proposed in the Company’s 2016 REST
12 Implementation Plan. This would be another ‘first in the nation’ program, similar to the
13 utility-owned DG program.”³⁷
14

15 **Q. Have others in this proceeding raised concerns regarding TEP’s proposal to grant**
16 **itself a monopoly of residential community DG solar?**

17 A. Yes. In its November 6, 2015 comments, RUCO stated that: “the latest community solar
18 product TEP is proposing is not designed to reach renters or apartment dwellers. A third-
19 party centric program may yield innovative offerings that could meet this need and
20 provide more options for customers to receive low cost grid scale solar.”³⁸
21

22 **Q. Do you believe TEP’s proposal for a community solar monopoly proposal warrants**
23 **outright rejection of that proposal?**

24 A. Yes. TEP’s proposal cannot be justified as being in the best interests of its ratepayers or
25 the public interest more generally. TEP’s sole purpose appears to be to gain monopoly
26 power in DG solar and that outcome is not in the public interest or the interest of its

³⁶ Direct Testimony of Carmine Tilghman, page 24, lines 17-20.

³⁷ TEP Response to DR STF 1.40(a).

³⁸ RUCO Comments, Docket No. E-01933A-15-0239, page 2 (Nov. 6, 2015).

1 ratepayers. And TEP cannot expect to participate in that marketplace on anything other
2 than a level-playing-field basis.

3

1 **Section 5: Potential Alternatives to TEP's Rooftop Expansion and**
2 **Residential Community Solar Proposals**

3 **Q. Do you believe there is an alternative approach to TEP's participation in residential**
4 **DG that might avoid the anticompetitive, anti-ratepayer impacts outlined above?**

5 A. Yes. TEP could offer both rooftop and community DG solar through affiliates that
6 comply with the Commission's affiliate codes of conduct.

7
8 **Q. Why should TEP provide rooftop solar through only through a separate affiliate?**

9 A. As I discussed above, TEP's Application is fraught with anticompetitive problems.
10 These could be alleviated if TEP participated in the competitive marketplace with a
11 competitive affiliate, one that operated outside of regulation. TEP's participation through
12 an affiliate would preclude anticompetitive tariffing and network communications, e.g.,
13 with smart inverters, sharing of customer information, and would create incentives for
14 equal treatment of competitors if TEP wishes to participate as a DG solar provider. A
15 competitive affiliate would be able to achieve the same benefits that TEP asserts would
16 be achieved through its proposals.

17
18 **Q. Even if use of separate subsidiaries would be appropriate with respect to rooftop**
19 **solar, why should this concept be applied to TEP's community solar proposal?**

20 A. TEP has made the decision that it wishes to provide DG through larger facilities on a
21 shared participant basis because it states such shared DG systems could provide
22 residential DG more cost-effectively than rooftop solar systems might, as well as serving
23 customers for whom placement of a rooftop system would be problematic due to
24 technical considerations. The provision of DG systems at rooftop scale or larger size for
25 commercial customers is competitive. There is no justification for allowing TEP to have
26 an unfair monopoly that provides residential DG through such larger systems just because
27 the output of those systems would be shared among subscribers. That this has not been
28 done before is not a good reason, from either an economic or public policy perspective, to

1 approve TEP's Application. It is TEP, after all, that wishes to provide such service so it
2 can achieve residential DG compliance, and there is no reason why it should not be
3 required to provide community-sited residential DG only as a level-playing-field
4 competitor. This would require opening this marketplace to third-party competitors on a
5 similar basis as any TEP affiliate. That said, the market for DG residential solar is
6 working and expanding. There is also no RES rationale for TEP's entry as a regulated
7 DG provider in a competitive market segment.
8

9 **Q. You say there is "no reason" not to require TEP to enter as a competitor on the**
10 **same basis as others. But aren't there regulatory barriers to entry by providers**
11 **other than TEP in its capacity as a utility?**

12 A. TEP states that "[i]n those states where third-parties are able to offer a community solar
13 program, they must have either a virtual net metering program or established distribution
14 wheeling charges. *At present*, neither exists in the State of Arizona." (Emphasis
15 added.)³⁹ I am not a lawyer, but as a former state regulator and student of regulation, I do
16 not find any reason why there would be any regulatory impediment preventing TEP from
17 creating a virtual net-metering program subject to the Commission's approval, even using
18 TEP as an intermediary, if necessary, to facilitate the legal provision of this option. A
19 virtual net-metering program for community-based DG solar does not currently exist.
20 Furthermore, I think that TEP, quite deliberately, did not ask for such a program in
21 Arizona. This is yet another reason to reject TEP's proposal because it demonstrates
22 TEP's anticompetitive approach to DG solar.
23

³⁹ Direct Testimony of Carmine Tilghman, page 24, lines 17-20.

1 **Section 6: Summary, Conclusions, and Recommendations**

2 **Q. Why do you conclude that TEP's proposed BOO Programs and their flat-rate**
3 **Riders are anticompetitive, and contrary to the tariffing objectives that TEP**
4 **proclaims should be applied to customers who wish to obtain DG solar solar without**
5 **reliance on TEP?**

6 A. TEP's BOO approach should be rejected because:

- 7 • Retail customers who pay to install or lease DG solar do not rely on other
8 customers or TEP to finance their equipment.
- 9 • TEP incorrectly suggests that its regulated monopoly DG solar product would
10 benefit other customers because the customers who take the "free" TEP rooftop
11 solar installation would pay the same average amount they had previously been
12 paying. This means customers that select BOO would pay for the existing
13 utility's fixed cost or make a contribution to the rooftop solar, but not both.
14 Instead, all retail customers would pay the all-in costs of TEP's BOO through
15 cost-of-service rates.
- 16 • There is no need to spend other ratepayer money to secure RECs. TEP falsely
17 and misleadingly claims that it must provide BOO DG solar to achieve its
18 residential REC requirements. The Commission has allowed competitively
19 supplied third-party DG solar to count toward TEP's RES requirements.
- 20 • TEP has shown no "need" for a monopoly utility-financed BOO regulated product
21 to be provided in an anticompetitive fashion to a successful, well-functioning
22 competitive marketplace.

23
24 **Q. Why do you conclude that TEP's BOO Program is anticompetitive?**

25 A. The Commission should reject what TEP proposes to do to rooftop DG solar because
26 TEP would likely destroy the current competitive DG solar marketplace and drive out
27 competitive businesses from Arizona. This will be the direct result of offering customers
28 a free option in the form of the BOO alternative, with TEP taking virtually no risk, under

1 very atypical terms, and garnering regulatory guarantees and protection. I conclude this
2 because:

- 3 • After firms that charge customers to install rooftop solar are driven from the
4 marketplace, TEP has no obligation to fill the void.
- 5 • TEP would likely declare the emergence of “need,” which it would satisfy with
6 new generation, perhaps not even DG, which it would add to rate base.
- 7 • Rate base utility investments require utility customers to pay about \$3 for each \$1
8 of utility investments for BOO generation. TEP’s cost of service and revenue
9 requirements would be less if customers who install DG solar pay to lease and
10 own DG; and TEP satisfies grid reliability and ancillary service requirements
11 using a less capital-intensive approach.

12
13 **Q. What do you recommend to this Commission?**

14 A. I recommend that the Commission reject TEP’s proposed expansion of the TORS pilot
15 program. I further recommend that the Commission reject TEP’s proposed TEP-Owned
16 Residential Community Solar program. Should TEP wish to provide DG solar,
17 particularly residential DG solar, then it should do so only through a separate affiliate in
18 compliance with Commission-approved codes of conduct and use a brand name and
19 business that is not similar to TEP.

20
21 **Q. Does this response conclude your testimony?**

22 A. Yes, it does.

Ex.-EFCA-Cicchetti-1

Curriculum Vitae of
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Professional History

- 2016-present Adjunct Instructor, Department of Electrical Engineering, USC Viterbi School of Engineering
- 2011-2014 Senior Advisor to Rothstein Kass & Company as Independent Consultant
- 2008-present Senior Advisor to Navigant Consulting, Inc. as Independent Consultant
- 1996-present Co-Founder Pacific Economics Group
- 2002-2003 Member of California ISO Market Advisory Group
- 1992-1996 Founder Arthur Andersen Economic Consulting
- 1988-1992 Managing Director and Co-Chairman Putnam, Hayes & Bartlett
- 1987-1990 Deputy Director, Energy and Environmental Policy Center, John F. Kennedy School of Government, Harvard University
- 1984-1987 Senior Vice-President National Economic Research Associates
- 1980-1984 Co-Founder Madison Consulting Group
- 1975-1980 Chairman Public Service Commission of Wisconsin; Director Wisconsin Energy Office
- 1972-1975 Economist and Expert witness for the Environmental Defense Fund

Academic Background

- 1998-2006 Jeffrey J. Miller Chair in Government, Business and the Economy, University of Southern California
- 1979-1986 Tenured Full Professor of Economics and Environmental Studies, University of Wisconsin, Madison
- 1969-1972 Post Doctoral Research for Resources For the Future, Washington, D.C.

Charles J. Cicchetti, Ph.D. is a Senior Advisor to Navigant Consulting, Inc. and Member of Pacific Economics Group. Dr. Cicchetti has frequently appeared as an expert witness in regulation, contract disputes, antitrust, patents, and damage analysis. He has testified more than 250 times before state, provincial, and federal regulatory commissions in the U.S. and Canada; about 50 times in civil, criminal, and arbitration proceedings; more than 20 times before legislative and federal agency committees. He has taught finance courses at the graduate and undergraduate levels, most recently at the University of Southern California. He has also written more than 20 books, more than 80 professional articles, and given more than 100 speeches over his 40 plus year career. He has started and managed three small businesses. Dr. Cicchetti's experience as a state regulatory commissioner, industry economist, and advisor to a wide range of domestic and international businesses, utilities, and governments provides clients with a unique breadth of experience in assessing opportunities for government and business to collaborate in developing and implementing leading-edge policies and strategies.

SELECTED PROFESSIONAL EXPERIENCE

Regulatory Proceedings and Industry Restructuring

- » Wrote several books on the marginal cost of electricity and time-of-use pricing. Between 1972 and 1975, testified in more than 20 states on behalf of environmental and consumer organizations seeking to reform electricity and natural gas tariffs and to promote conservation.
- » Between 1975 and 1980 served as a state official and utility regulator. Prepared and helped to enact a comprehensive state energy and environmental policy package that established consumer protection, energy conservation, and statewide planning. Adopted regulations to establish a consumer bill of rights, marginal cost and time-of-use tariffs, and energy conservation, while retaining the state's utilities' AAA bond ratings.



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Charles J. Cicchetti, Ph.D.

- » From 1980 to the present, regularly provided expert testimony before state, federal, and foreign regulatory commissions on finance issues, tariff design, energy efficiency, mergers and acquisitions, and environmental matters for regulated energy and telecommunications companies and other interested parties. Provided testimony more than 250 times in various regulatory proceedings.
- » Wrote/edited four books studying and analyzing the costs and benefits of reforming electricity pricing, load management and advanced time of use and real time metering. Testified in several different regulatory jurisdictions with respect to various improved metering options and the development of demand side programs. While sitting as the Chair of the Public Service Commission of Wisconsin reviewed and issued decisions on various programs put forth with respect to the costs and benefits of proposed tariff reforms, energy efficiency and time sensitive metering in the context of proposed time of use pricing, demand side, and load management programs.
- » Appeared before FERC and various state regulatory commission and courts in numerous proceedings related to the California energy crisis and its aftermath.
- » FERC testimony in support of a proposed amendment to an Open Access Transmission Tariff (OATT) to add a new Schedule 12, Wind Integration Within-Hour Generation Following Service designed to make available sufficient generation capacity to follow and compensate for the deviations that occur between a wind generator's scheduled output and its actual generation within a scheduling hour.
- » Prepared White Paper analyzing the effect of an extension of the Production Tax Credit on jobs and generation within various types of generation. Included an analysis of wind generation, other renewable generation, and traditional generation sources.
- » For several California municipal utilities, prepared an analysis of and strategy designed to respond to the California Air Resources Board's (CARB) Cap and Trade Program. Prepared an analysis of the unique risks faced by municipalities under proposed rules, analyzed obligations under proposed rules and the effects of under/over-supply in the market, and developed potential solutions for the municipal utilities in California.
- » Before the United States Supreme Court, filed an Amicus Curiae Brief on behalf of Petitioners in *Federal Energy Regulatory Commission v. Electric Power Supply Association, et. al*, Nos. 14-480 & 14-841, with respect to the FERC's Order 745 and the appropriate compensation to pay to providers of demand response in organized wholesale markets.
- » Actively involved in the debate in the U.S. in a number of jurisdictions concerning the use of Net Energy Metering (NEM) and rooftop solar competition and regulation.



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Canadian and International Regulatory Experience

- » Provided an expert report in the Matter of an Arbitration (Alberta) between TransAlta Generation Partnership and ENMAX and the Balancing Pool with respect to *Force Majeure* and other provisions of the Arrangement at the Keephills Generating Station.
- » Provided evidence before the National Energy Board for Centra Gas Manitoba with respect to the economic effects and adverse consequences associated with TransCanada Pipelines' Application to Approve Settlement between TCPL and three Eastern Canadian LDCs.
- » Provided evidence before the National Energy Board for Phillips 66 with respect to Nova Gas Transmission Ltd.'s Application for Tariff Amendments Regarding Verification Procedures.
- » Before the National Energy Board, provided evidence for Westcoast Energy Inc. Carrying on Business as Spectra Energy opposing TransCanada's Application for Approval of the North Montney Project.
- » Before the National Energy Board, provided evidence for Westcoast Energy Inc. Carrying on Business as Spectra Energy opposing TransCanada's Application for Approval of the Komie North Project.
- » Provided evidence in Arbitration proceedings with respect to *Force Majeure* and other provisions of the Arrangement at the Sundance Generating Station Units 1 and 2 between TransAlta and TransCanada Energy.
- » Provided evidence in Arbitration proceedings with respect to *Force Majeure* and other provisions of the Arrangement at the Sundance Generating Station Unit 6 between TransAlta and Capital Power Management, Inc.
- » For the Alberta Handling Commission, prepared Reports in 2006, 2010, and 2013 with respect to the appropriate retail margins (handling fees) for bottle depots in Alberta.
- » For ATCO Gas, before the Alberta Utility Commission, provided expert evidence in its General Rate Application with respect to including energy efficiency programs in the utilities cost of service.
- » For ATCO Electric, before the Alberta Utility Commission, provided expert evidence in its General Rate Application, including evidence with respect to Contributions in Aid of Construction (CIAC).
- » For EPCOR Distribution and Transmission, Inc., before the Alberta Utility Commission, provided expert evidence in support of its 2010-2011 Phase 1 Distribution Tariff and Transmission Facility Owner Tariff.



Pacific Economics Group
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Charles J. Cicchetti, Ph.D.

- » For EPCOR Energy Alberta, before the Alberta Utility Commission, provided expert evidence in its Review Hearing with respect to its Regulated Rate Tariff Non-Energy Return.
- » For AltaLink Management, Ltd., before the Alberta Utility Commission, provided expert evidence in support of its General Tariff Application.
- » For ATCO Electric and Direct Energy Regulated Services, before the Alberta Energy and Utility Board, provided expert evidence in support of their respective applications for a Retail Margin for their Regulated Services Default Rate Tariff and Regulated Rate Tariff (RRT) Application.
- » For Union Gas Limited, Enbridge Gas Distribution and Société en commandite Gaz Métro provided expert evidence before the National Energy Board opposing TransCanada Pipelines' Application for Approval of New Receipt and Delivery Point and Related Tolls (North Bay Junction).
- » For ATCO Pipelines, before the Alberta Energy Board, provided expert evidence in opposition to NOVA Gas Transmission's Application for Fort Saskatchewan Extension and Scotford, Josephsburg, and Astotin Sales Meter Stations.
- » For BC Gas Utility Ltd., before the National Energy Board, provided expert evidence in opposition to the Fort St. John and Grizzly Valley Expansion Projects.
- » For ICG Utilities, before the Ontario Energy Board, provided expert evidence with respect to the 1987 Amended Gas Pricing Agreement.
- » For Unicorp of Canada Corporation, before the Ontario Energy Board, provided expert evidence with respect to the impact on Union Gas of Unicorp's acquisition of Union Enterprises.
- » Before various Canadian Regulatory Commissions, provided expert evidence on energy and telephone pricing issues.
- » Worked for the World Bank and U.S. A.I.D. and advised numerous governments on how to establish Independent Power Projects in developing nations and how to reform utility tariffs and establish sustainable environmental development. Has provided advice to governments in South Korea, the Philippines, Pakistan, Bangladesh, and Turkey.
- » Provided analysis and expert testimony in several proceedings in Australia with respect to restructuring the electric and gas industries.



Pacific Economics Group
Economic and Litigation Consulting

Charles J. Cicchetti, Ph.D.

Selected Litigation and Antitrust Experience

- » Provided expert testimony with respect to damages in an action arising from a contract dispute (*Anaconda Coal*).
- » Provided expert testimony with respect to damages in an action arising from a contract dispute (*Fluor Daniel v. Madera*).
- » Provided expert analysis and testimony in an action involving electricity prices charged by a municipal electric utility (*Los Angeles Department of Water and Power v. Industrial Electric Users*).
- » Provided expert testimony related to damages in a contract dispute with respect to a Qualifying Facility electricity purchase dispute (*Pacific Enterprises v. San Diego Gas & Electric*).
- » Provided expert testimony related to damages in an action with respect to a dispute over a joint software patent and contract (*Planmetrics v. Energy Management Associate-Marketing*).
- » Provided expert analysis and testimony in an action involving a disputed purchase (*Tecumseh Pipeline*).
- » Provided expert analysis and testimony with respect to large industrial user price contracts (*Tennessee Valley Authority*).
- » Testified with respect to the lost profits related to electricity that would have been produced but for the defective construction of the sixth unit of the geothermal plant located in the Salton Sea area, (*Cal Energy, Vulcan/BN Geothermal v. Stone & Webster*).
- » Provided expert testimony in an action for the breach of an electricity power contract (*Idacorp Energy v. Overton Power Utility District*).
- » Provided expert testimony with respect to the Constitutionality of the Wisconsin Public Utility Holding Company Act in an action brought by an investor-owned utility against the State of Wisconsin, (*Alliant v. State of Wisconsin*).
- » Provided expert testimony with respect to damages in an action alleging fraud by a training class vendor in submitting vendor claims (*Microsoft*).
- » Provided expert testimony with respect to the dispute related to an alleged breach of a power contract in an action brought in bankruptcy court, (*Enron Power v. Virginia Electric & Power*).



Pacific Economics Group
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Charles J. Cicchetti, Ph.D.

- » Provided expert testimony in a contract dispute in an action arising out of the California energy crisis, (*Nevada Power v. El Paso Corporation*).
- » Provided expert testimony in a complaint seeking to set aside a long-term power contract and recover damages due to actions allegedly taken by one of the parties during the California energy crisis (*Wah Chang v. PacifiCorp*).
- » Provided expert testimony in an action taken in a power contract dispute arising out of the California energy crisis (*PowerEx v. Idacorp*).
- » Analyzed and debunked the evidence presented by plaintiffs as evidence of historical damages in a patent litigation case (*Apple v. Microsoft/Hewlett Packard*).
- » Provided expert testimony related to damages in an action alleging trade dress infringement involving greeting cards (*Blue Mountain v. Hallmark*).
- » Provided expert testimony related to damages in an action alleging trade dress infringement involving a logo (*Polo v. Brown, et.al*).
- » Provided expert testimony in an action related to Telex and TWX price competition (*Western Union v. AT&T*).

Securities and Financial Analysis

- » Provided analysis and expert testimony related to stock price manipulation and how the release of financial information affected analysts' recommendations and share prices. *U.S. v. Barford, Kalkwarf and Smith, U.S. Criminal Courts* (Charter Communication).
- » Provided expert testimony in a shareholder class action lawsuit alleging damages related to statements reported in SEC filings by a power marketer during the California energy crisis (*Calpine Securities Litigation*).
- » Provided analyses in securities class action related to bond prices. *In Re Avista Corporation Securities Litigation, United States District Court, Eastern District of Washington in Spokane*.
- » Provided quantitative and statistical analysis of trading practices over the course of a 5-year period and analyzed how trading strategy evolved over time, leading to the company's financial collapse. *In Re SemGroup, U.S. Bankruptcy Court Case No. 08-11525 (BLS)*.



Pacific Economics Group
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Charles J. Cicchetti, Ph.D.

- » Before FINRA in an action for improper and/or unauthorized management, control, and trading of an investment portfolio, provided analysis as a fact witness and an affidavit to the SEC for a matter related to naked trading of the VIX market index and failure to execute straddle and strangle trading strategies that caused the fund to lose principal that trader had pledged was to have been protected.
- » Provided analysis and expert testimony related to issuing shares and their value to settle litigation, demonstrating that issuing additional shares does not affect the value of the enterprise to other shareholders. *Enterasys Networks, Inc. V. Gulf Insurance Company, United States District Court, District of New Hampshire.*
- » Testified as to the value of the services to be provided in a contract dispute involving the breach of a Management Services contract to provide utility services, (*Astrum Utility Services v. City of Industry*)
- » Provided analysis comparing tracking and common stock values. *In re SprintNextel, Johnson County District Court, Kansas.*
- » Provided analysis and expert report defending against allegations of the existence of a collusive cartel operating in the corn sweetener market. Analyzed the structural conditions, exchange methods, marketing strategies, and evidence of collusive pricing in U.S. markets for corn sweeteners *Gray & Company v. Archer Daniel Midland (ADM) et al*
- » Provided analysis and expert testimony in price fixing case (Southern Union Gas).
- » Provided analysis in unfair marketing practices (U.S. West).
- » Provided analysis and testimony in a price fixing case (Southern Union Gas).
- » Provided analysis and testimony with respect to market power in natural gas markets (Koch Gateway).
- » In several assignments analyzed potential international acquisitions in China, Mexico, Brazil, New Zealand, the Dominican Republic, and Bolivia for several U.S. utilities and corporations.

Mergers and Valuations

- » Provided analysis and expert opinion for an Indian Nation with respect to the valuation and purchase of a coal mine.



Pacific Economics Group
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- » In numerous electric utility mergers, analyzed the value of the companies to be acquired and made recommendations to Boards of Directors and senior management with respect to which merger candidates that would be accretive versus dilutive at various acquisition premiums.
- » Provided economic valuation analysis and expert testimony for Trans Alaska Pipeline System (TAPS) in several state regulatory proceedings.
- » Provided a fairness opinion to the SEC in support of a merger offer involving Wisconsin electric utilities.
- » Provided expert testimony to regulatory commissions in support of several electric utility mergers.
- » Provided expert testimony in a breach of contract action assessing whether the use of the Hard Rock Café trademark in connection with the hotel/casino entertainment operations tarnishes or otherwise diminishes the goodwill of the trademark and if so, to what extent (*Hard Rock Cafe International v. Hard Rock America*).
- » Provided expert economic analysis with respect to the value of the partnership in an action involving the dissolution of a medical partnership (*Schmitman v. Kantor*).
- » Provided expert testimony as to damages in an action to recover loss of license revenue and unjust enrichment due to various alleged breaches and misappropriations of trade secrets related to Very Long Instruction Word programming (*VLIW Technology v. Hewlett Packard Company*).
- » Provided expert testimony with respect to damages in an action arising from a contract dispute involving value of a nuclear power plant. (*Gulf + Western (Paramount) v. Niagara Mohawk*).
- » Testified with respect to Black-Scholes option pricing model, option pricing and the various factors that affect share value in various energy utility and trading cases.
- » Provided a valuation and analysis of a business unit (copiers) within Xerox.
- » Provided a valuation of an oil refinery located in California.
- » Provided an analysis valuing easements and rights-of-way crossing tribal lands for an Indian Nation.

Modeling



Pacific Economics Group
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Charles J. Cicchetti, Ph.D.

- » In various assignments, designed statistical models, conducted surveys and conducted marketing experiments. These models have been used for a variety of purposes including cost/benefit analyses, estimating merger synergies, valuation of property for tax purposes, and valuation of lost use values in environmental damage actions, among others.
- » Testified before the Federal Communications Commission, various regulatory commissions, and state and federal courts. Co-authored several academic papers on the topic.
- » Designed various models to evaluate the economic development benefits of various public and private development projects to provide expert testimony in litigation and to offer strategic, managerial and governmental financial and economic advice.

Major Books

- » Going Green and Getting Regulation Right, Public Utilities Reports, Inc. March 2009.
- » The California Electricity Crisis: What, Why, and What's Next, with Jeffrey A. Dubin and Colin M. Long, Kluwer Academic Publishers, July 2004
- » Restructuring Electricity Markets: A World Perspective Post-California and Enron, Visions Communications, with Colin M. Long and Kristina M. Sepetys, May 2003
- » The Marginal Cost and Pricing of Electricity: An Applied Approach, with W. Gillen and P. Smolensky, Cambridge: Ballinger Publishing Company, 1977.
- » The Costs of Congestion: An Econometric Analysis of Wilderness Recreation, with V.K. Smith, Cambridge: Ballinger Publishing Company, 1976.
- » Energy System Forecasting, Planning and Pricing, ed. with W. Foell for the National Science Foundation, Madison: University of Wisconsin Monograph, 1975.
- » Studies in Electric Utility Regulation, ed. with J. Jurewitz for the Ford Foundation Energy Policy Project, Cambridge: Ballinger Publishing Company, 1975.
- » Perspective on Power: A Study of the Regulation and Pricing of Electric Power, with E. Berlin and W. Gillen for the Ford Foundation Energy Policy Project, Cambridge: Ballinger Publishing Company, 1974.



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Charles J. Cicchetti, Ph.D.

- » Forecasting Recreation in the United States: An Economic Review of Methods and Applications to Plan for the Required Environmental Resources, Lexington: Lexington Books, June 1973.
- » Alaskan Oil: Alternative Routes and Markets, for Resources for the Future, Baltimore: Johns Hopkins University Press, December 1972.