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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2008-0318

REBUTTAL TESTIMONY

OF

WILLIAM J. BARBIERI

ON

BEHALF OF

**UNION ELECTRIC COMPANY
d/b/a AmerenUE**

****DENOTES HIGHLY CONFIDENTIAL INFORMATION****

St. Louis, Missouri
October, 2008

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TABLE OF CONTENTS

I. INTRODUCTION 1

II. PURPOSE OF TESTIMONY 2

III. PURE POWER DESCRIPTION..... 3

IV. STAFF CONCERNS WITH PURE POWER 5

V. RECs USE IN GENERAL 12

1 **REBUTTAL TESTIMONY**

2 **OF**

3 **WILLIAM J. BARBIERI**

4 **CASE NO. ER-2008-0318**

5 **I. INTRODUCTION**

6 **Q. Please state your name and business address.**

7 A. My name is William J. Barbieri. My business address is One Ameren Plaza,
8 1901 Chouteau Avenue, St. Louis, Missouri 63103.

9 **Q. By whom are you employed and in what position?**

10 A. I am employed by AmerenEnergy Fuels and Services Company (“AFS”) as
11 Manager, Renewables.

12 **Q. Please describe your employment and educational background.**

13 A. I joined the Fossil Fuel Department of Ameren Corporation in August of 1999
14 as Senior Business Development Executive, after 20 years with Peabody Coal Company. I
15 was promoted to Coal Business Development Director in 2000 and handled the procurement
16 and sale of third party coal along with marketing functions for coal terminal activities. In
17 November of 2004, I was asked to coordinate the renewable energy initiative for Ameren
18 Corporation and the Ameren affiliates as Managing Executive, Renewables. I was promoted
19 to Manager, Renewables in October, 2007. I received a Bachelor of Science Degree in
20 Business Administration from St. Louis University in 1977 with accounting as my area of
21 specialization.

1 be unfounded. Additionally, our participating customers overwhelmingly support this
2 program and desire that it continues. Attached to my testimony as Schedule WJB-RE1 are
3 recent letters received by AmerenUE on the occasion of the one year anniversary of its Pure
4 Power program. As these letters clearly indicate, our participating customers are savvy about
5 how the program works and are highly supportive of it.

6 **III. PURE POWER DESCRIPTION**

7 **Q. Was Staff's description of AmerenUE's Pure Power program accurate?**

8 A. Staff's description was fairly accurate, in that Pure Power is a voluntary
9 program available to AmerenUE customers where they pay an additional amount (\$15 per
10 MW equivalent) to purchase a Renewable Energy Credit ("REC"). A REC reflects the
11 intangible attributes of green electricity. These RECs are purchased from a third party,
12 3 Degrees which, in turn, purchases the RECs from the green power producer. 3 Degrees is
13 also responsible for program development, marketing and for ensuring compliance with the
14 Green-e standards.

15 **Q. How did Pure Power first originate at AmerenUE?**

16 A. Our customers first requested that AmerenUE offer a green energy option, so
17 AmerenUE began to look for methods to provide that option to our customers in a timely
18 manner. We issued a request for proposals for companies who had successfully developed
19 such voluntary REC programs across the country and selected 3 Degrees. Discussions and
20 contract negotiations took approximately one year and then AmerenUE received permission
21 from the Commission to offer its Pure Power program.

22 **Q. How did AmerenUE put into place protections for its customers who**
23 **participated in its Pure Power program?**

1 A. As a part of the development of its program, AmerenUE realized it would be
2 difficult to project the level of participation that could be expected from our customers. Due
3 to this uncertainty, AmerenUE was reluctant to purchase the RECs directly from the green
4 power producer. RECs have a shelf life, so if AmerenUE purchased too many RECs, there
5 would be a risk of the REC expiring prior to it being purchased by our customers. In order to
6 avoid that risk, AmerenUE negotiated a contract that required 3 Degrees to buy back any
7 RECs that expire. This risk is shouldered by 3 Degrees rather than by AmerenUE or its
8 customers.¹

9 AmerenUE wanted a fixed cost for its customers rather than a cost that would
10 change yearly and so negotiated a five year contract term. The contract sets forth financial
11 obligations related to extensive marketing requirements that must be met by 3 Degrees for
12 the promotion of the program and to educate our customers about renewable energy and
13 RECs. Accordingly, any risk of increases in the REC cost, administrative costs or
14 educational costs falls upon 3 Degrees during this five year contract term.

15 AmerenUE also imposed a requirement that the RECs be procured from a
16 specific geographic region (50% from generators located within Missouri or Illinois with the
17 remainder from generators located within the MISO region). This was done to ensure our
18 customers' dollars are used to support local and regional development of green power and
19 that those funds are not sent to projects in distant areas of the country. This requirement, of
20 course, restricts the number of RECs available for purchase.

21 AmerenUE also chose to participate in a program that would be Green-e
22 certified and for 3 Degrees to pay for the annual Green-e audit. This is done through the
23 Center for Resource Solutions ("CRS"), which is recognized as the industry leader in

¹ In fact, 3 Degrees has bought back expired RECs from AmerenUE during the first year of this program.

1 providing stringent environmental and consumer protection standards. Green-e certification
2 imposes additional restrictions, including:

- 3 • RECs come from facilities brought online no earlier than 1997²;
- 4 • RECs may not be derived from facilities mandated by local, state or federal
5 requirements;
- 6 • RECs or the electricity from which they are derived may not be used to
7 simultaneously comply with local, state or federal mandates;
- 8 • Program providers must undergo an annual Green-e certification audit to
9 document that enough RECs were purchased to meet customer demand and
10 that all RECs were sold only once;
- 11 • Program providers agree to abide by the Green-e Code of Conduct and to
12 submit marketing materials to CRS for their review; and
- 13 • Program providers must disclose the quantity, type and geographic source of
14 the RECs.

15 **IV. STAFF CONCERNS WITH PURE POWER**

16 **Q. The Staff Report and the direct testimony of James Watkins set forth**
17 **several concerns with AmerenUE's Pure Power program. Do you believe their**
18 **concerns are justified?**

19 A. I do not. Interestingly, a careful reading of the Staff Report reveals that Staff
20 does not allege AmerenUE or 3 Degrees has done anything wrong; it only raises a series of
21 questions that *maybe* something is or is not happening, the implication of which is to hint at

² AmerenUE self imposed the requirement that RECs associated with its Pure Power program come from facilities that were put into operation no earlier than January 1, 2002 rather than the 1997 Green-e requirement.

1 Staff reservations about this program. I find this type of insinuation unusual to be coming
2 from Staff. Nonetheless, I will attempt to address those concerns and to assure the
3 Commission that the Pure Power program should continue.

4 **Q. Staff's first concern is whether or not participants understand what a**
5 **REC represents and whether they may believe they are purchasing actual green power**
6 **for their home or business. Has AmerenUE found its customers to have this**
7 **misperception?**

8 A. No. This is a repeat of Staff's concern as expressed in Case No. ER-2007-
9 0002. The Commission rejected that concern as a reason to not authorize the Pure Power
10 program and there is no reason that decision should be changed. Pure Power has been
11 offered to our customers for a year now and AmerenUE has not experienced customer
12 confusion on what a REC represents. To ensure that doesn't happen, AmerenUE and
13 3 Degrees both strive to be very clear in Pure Power literature and to always explain that the
14 purchase of a REC is not the purchase of green electricity. We believe the customers who
15 participate in this program understand the distinction and that their participation is driven by
16 a desire to support green power producers, which is what the Pure Power program allows
17 them to do. To further protect against any potential confusion, customers are not required to
18 commit to a participation contract and may drop from the program at any time without
19 financial penalty or obligation.

20 **Q. The Staff Report insinuates that Pure Power customers will expect their**
21 **REC to stimulate new green power generation and that doesn't happen because a REC**
22 **is for electricity that was already produced. Do you believe this to be a legitimate**
23 **concern?**

1 A. I believe Staff is incorrect. Again, Staff relies upon vague assertions that our
2 customers may be confused. AmerenUE’s literature is very specific and states that a REC
3 means a MW of green power has been produced, not that it is for future production. While it
4 is true that the electric power is produced prior to the REC being issued, we believe that the
5 resulting credit payments have been instrumental to the operations of the green power
6 producers. We know that one producer from which 3 Degrees purchases RECs has stated
7 that the REC payments are central to the economic viability of its project, the Noble Hill
8 Landfill plant.³ On a national scale, these programs have been credited with spurring new
9 green generation. The National Renewable Energy Lab and the Federal Department of
10 Energy state that programs such as Pure Power have assisted in over 1,000 MWs of new
11 renewable projects coming online. “At the end of 2006, green pricing sales were equivalent
12 to more than 1,000 MW of new renewable energy capacity. Thus, green pricing continues to
13 be a viable strategy for supporting the development of new renewable energy sources.”
14 *Trends in Utility Green Pricing Programs* (2006), Lori Bird and Marshall Kaiser. NREL/TP
15 -670-42287, October 2007.

16 Further, if the renewable generator were not producing the electricity, there is
17 a high probability that the electricity would have come from a fossil-fueled generator. A
18 REC is not created without actual renewable generation taking place. It is AmerenUE’s
19 belief that our participating customers’ goal is to support the producer of green energy. Pure
20 Power provides them that opportunity.

21 **Q. Staff alleges that the Federal Department of Energy’s website says that**
22 **RECs should cost between \$2 and \$5. Why is AmerenUE’s Pure Power program**
23 **higher?**

³ The Noble Hill Landfill is operated by the City Utilities of Springfield.

1 A. As explained above, AmerenUE has imposed several requirements upon
2 3 Degrees in the administration of Pure Power which resulted in an increase in the amount
3 paid by AmerenUE's customers for a REC. If 3 Degrees were allowed to purchase the RECs
4 for this program from one of the many wind farms in Texas, for example, they might be able
5 to purchase them for \$2. However, to meet the conditions set forth for the Pure Power
6 program, the REC must come from Missouri, Illinois or within MISO. Additionally,
7 AmerenUE contractually obligated 3 Degrees to carry certain risks of the program – such as
8 buying back expired RECs, obligating them to a set price for the entire five year contract, and
9 providing educational and marketing information to all AmerenUE electric customers.
10 Illinois is experiencing similar costs. The table in Schedule WJB-RE2 captures the costs of
11 various Illinois utility green pricing programs. The premium charged for those programs
12 ranges from 1.5 cents a kWh to 3.0 cents a kWh. AmerenUE's program would be at the
13 lower end of that range. AmerenUE is comfortable that it is offering a program with great
14 value to its customers. Furthermore, we have recently been informed that a recent purchase
15 of RECs for use in the Pure Power program for 2009 was procured at a rate in excess of
16 ** ** per REC.

17 **Q. The Staff report points out that AmerenUE's Pure Power tariff does not**
18 **disclose that \$1 out of every \$15 is kept by the Company. Does AmerenUE object to**
19 **changing the tariff to include this information?**

20 A. No, AmerenUE agrees this information should be in its tariff. The Company
21 discloses, to both participants and those considering participation, the fact that it retains a
22 dollar of the \$15 through its literature about Pure Power. When AmerenUE files compliance

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1 tariffs in this case, it will include a new Pure Power tariff which clearly discloses the
2 retention of the dollar by AmerenUE.

3 **Q. The Staff Report alleges that non-participating customers are paying**
4 **AmerenUE's administrative costs of this program. Is this correct?**

5 A. We are not aware of this occurring and believe we have taken the appropriate
6 accounting precautions to ensure this does not occur. Here again the Staff Report voices
7 confusion about this program. Staff claims it is unclear how AmerenUE and AFS interact in
8 regard to this program. AmerenUE has not identified the true source of this uncertainty. The
9 set up of this program is not complicated and it has not been hidden from Staff or from this
10 Commission. AFS administers this program on behalf of AmerenUE. AFS is the party who
11 negotiated the contract with 3 Degrees. This is no different than when AFS negotiates a
12 natural gas or coal supply contract on behalf of AmerenUE. AFS is merely acting on behalf
13 of or as an agent of AmerenUE. The customer's \$15 payment does not go through AFS. It
14 comes to AmerenUE and \$14 for each payment is forwarded to 3 Degrees.

15 Both the costs and the revenues of this program are currently taken below the
16 line of AmerenUE's regulated operations. For example, the time AFS spends to administer
17 Pure Power is not allocated to AmerenUE's regulated operations. The initial contract cost of
18 \$375,000 was not charged to AmerenUE customers. AmerenUE retains a dollar of each \$15
19 payment in order to help offset these costs, but it has not and is not asking for these costs to
20 be included in the cost of service used for establishing rates. AmerenUE agrees that non-
21 participating customers should not pay the costs of this program. Accordingly, the Company
22 has treated the expense and the limited revenue as a below the line expense and revenue.

1 **Q. Staff also expressed the concern that the customer’s payments may**
2 **mostly be used for administrative costs and pointed to the Florida Public Service**
3 **Commission’s termination of Florida Light & Power Company’s Sunshine program.**
4 **Their recommendation is that AmerenUE provide an explanation of how much of the**
5 **money is paid to green power producers and that AmerenUE disclose this information**
6 **to participants. Can you respond to this concern and recommendation?**

7 A. First, I want to be clear that AmerenUE does not object to providing an annual
8 report to participating customers so that they know what percentage of their funds are used
9 for administrative costs, educational efforts and for the actual purchase of the RECs.
10 Attached to my testimony as Schedule WJB-RE2 is a report from 3 Degrees which sets forth
11 this information to date and what it is projected to be throughout the life of the current
12 contract. As we have stated in response to Staff’s previous inquiries, neither AmerenUE nor
13 AFS are a party to the contracts negotiated between 3 Degrees and any generator of RECs.
14 3 Degrees has voluntarily provided this information and AmerenUE appreciates their
15 cooperation in doing so.

16 Second, I am not testifying in defense of or in opposition to Florida Light &
17 Power’s Sunshine program, but I am aware that program operated differently than Pure
18 Power and did not contain many of the same restrictions to ensure program integrity. For
19 example, the program did not require Green-e certification and the RECs could be purchased
20 from anywhere in the United States. I would suggest it more appropriate that this
21 Commission judge Pure Power on its own merits than to judge it on a cancelled program in
22 another state which fails to offer the same safeguards as the Pure Power program.

1 ** [REDACTED]
2 [REDACTED]
3 [REDACTED]
4 [REDACTED]
5 [REDACTED]**

6 3 Degrees' report shows that, in the first year of the Pure Power program, as a
7 percentage of the \$14 that 3 Degrees receives from AmerenUE customers, ** [REDACTED]**⁴ was
8 spent procuring RECs from producers of renewable energy. Approximately ** [REDACTED]**
9 was spent on consumer education and ** [REDACTED]** was spent on administration of the
10 program. 3 Degrees is experiencing and will continue to experience an operating loss in the
11 first two years of the program. This is largely due to the need to educate consumers on both
12 renewable energy and how RECs work to promote that development. The chart which shows
13 these expenditures as a percent of 3 Degrees revenue clearly indicates that the percentage
14 spent on consumer education and operations is expected to decrease throughout the five year
15 contract. Consumer education about renewable energy requires considerable up front
16 investment, while 3 Degrees is bearing much of the program risk. The Commission should
17 remember that this is only the first year of Pure Power and it is only in the final years of the
18 five year contract that 3 Degrees expects to earn a return on this program.

19 **Q. Which of the four recommendations made by Staff are appropriate for**
20 **AmerenUE to comply and which are not?**

21 A. AmerenUE agrees to disclose to participants in this program the percentage

⁴ If releasing this information is deemed necessary by the Commission, 3 Degrees has agreed to do so. Until such time, however, 3 Degrees requests this information remain confidential as it is information pertaining to the manner in which they operate their business.

1 that goes to green power producers from the \$14 payment that is made to 3 Degrees. The
2 current information as well as the projected percentages is contained in Schedule WJB-RE2.
3 AmerenUE agrees to amend its tariff to disclose that \$1 is retained of the \$15 paid per REC.
4 The recommendation that AmerenUE does not believe is appropriate is Staff's suggestion
5 that the expenses and revenues of this program be taken above the line. This is inconsistent
6 with Staff's previously stated concern that non-participants could be bearing part of the
7 program costs. The risk of this Staff suggestion is that AmerenUE's non-participating
8 customers would end up paying what is intended to be a completely voluntary cost.

9 **V. RECs USE IN GENERAL**

10 **Q. Do RECs have the potential to be used in Missouri for other purposes?**

11 A. I believe it instructive that RECs may be used by AmerenUE itself in order to
12 comply with the Clean Energy Initiative ballot measure ("Proposition C"), should it pass.
13 This measure would require Missouri utilities to generate or purchase certain amounts of
14 electricity from renewable energy sources such as solar, wind, biomass and hydropower. If
15 this proposition passes, one compliance mechanism available to Missouri utilities will be to
16 purchase RECs in order to fulfill the proposition's mandate.⁵ The language of the ballot
17 measure states, "A utility may comply with the standard in whole or in part by purchasing
18 RECs." Language of Proposition C, proposed as RSMo. 393.1030.1. Indeed, if the measure
19 passes, Missouri will not be the only state using RECs to comply with renewable portfolio
20 standards. Based on information published by the U.S. Department of Energy, 28 states
21 currently have renewable portfolio standard requirements and, of those 28, 26 states allow for
22 the use of RECs to meet the mandatory requirement.

⁵ If a REC is purchased by an AmerenUE customer, it is retired and cannot be used to fulfill AmerenUE's (or anyone else's) obligation.

1 **Q. How is this information instructive for the Commission?**

2 A. I hope the recognition of the wide use of RECs through the United States will
3 ease any Commissioner concern that might have been raised by the Staff Report. The
4 individuals and groups behind the Clean Energy Initiative are sophisticated enough to
5 understand what a REC does or does not represent and they included specific language to
6 allow the purchase of a REC by a utility to fulfill the renewable mandate. The effort to get
7 this measure on the ballot was arduous and ultimately involved litigation in Missouri courts.
8 This is not a group that is confused by the difference between a REC and actual renewable
9 power.

10 This point is further illustrated by a recent EPA publication which stated,
11 “RECs are increasingly seen as the ‘currency’ of renewable electricity and green power
12 markets.” *Renewable Energy Certificates*, publication of EPA’s Green Power Partnership,
13 July 2008, p. 1. The same publication continues, “Increasingly, federal, state and local
14 governments are also using RECs as a credible means to meet environmental goals for
15 renewable energy generation.” *Id.* A copy of this publication is attached to my testimony as
16 Schedule WJB-RE3.

17 **Q. Does this conclude your rebuttal testimony?**

18 A. Yes, it does.

19

CITY  UTILITIES
Bringing Power Home.

October 13, 2008

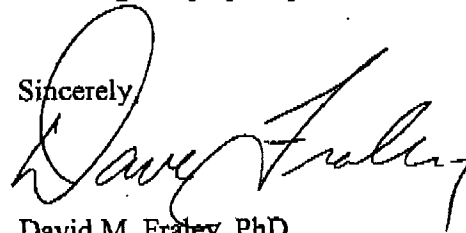
Mr. John Friskel
3Degrees Group
Presidio of San Francisco
6 Funston Ave.
San Francisco, CA 94129

Dear Mr. Friskel:

Re: Noble Hill Landfill Gas Energy Project

This is to express our appreciation for your continued interest and support of our landfill gas energy program. The revenue from REC sales go toward paying off the Noble Hill project. Without RECs, the project payback period would be greatly extended. If you ever require additional information concerning this project, please do not hesitate to contact me.

Sincerely



David M. Fraley, PhD
Director – Environmental Affairs

Barbieri, William J

From: Bill Fechner [wf@advprinting.com]
Sent: Wednesday, October 01, 2008 8:47 AM
To: Barbieri, William J
Cc: cbambini
Subject: Happy Anniversary

Bill,

Just a quick note to congratulate you and Ameren on Pure Power's first year anniversary. I never thought that manufacturing could feel so good! The Wind Power option has been a blessing for our clients, our kids, the earth and our peace of mind. With all the greed surrounding us in the marketplace this initiative has been a breath of fresh air (pun intended!!!)

Happy Anniversary and many more,

Your partner in Pure Power,

The Employees of Advertisers Printing Co., Inc Bill Fechner, CEO

Barbieri, William J

From: John Heaney [jheaney@advertisersprinting.com]
Sent: Wednesday, October 01, 2008 8:37 AM
To: Barbieri, William J
Subject: Happy Anniversary Pure Power...

Dear Bill,

Thanks a million for allowing our firm the opportunity (and more importantly the capability) to offer the St Louis region a wonderful renewable, "the wind". Pure Power has been central to our sustainable message here at Advertisers Printing. We were the first printer in Missouri to offer Forest Stewardship Council certification for our eco friendly printed pieces. We were the first to offer exclusive use of zero emission process inks in our pressroom. We've also gone to reduced energy lighting throughout our manufacturing areas of the plant. My company car is a Prius, the owner Bill Fechner drives a Prius as well. This is only the beginning of our long journey in raising awareness.

Pure Power by far has been our greatest eco-advantage to date. The home spun, grass roots nature of the revenues being returned to rural Missouri is simply brilliant. We commend Ameren for having the vision to make this program a reality. As we all know it takes the domestic energy from all market sectors to make us clean and independent. Cindy Bambini is one of our best resources, and she's very passionate about your program. When she speaks to one of our many graphic design gatherings, the folks really do get it. Keep up the great work Bill.

Best Regards,
-JH

John Heaney
Vice President, Sales
The Advertisers Printing Company
1229 S. Vandeventer Ave
St Louis, MO 63122
314.652.9924

Barbieri, William J

From: JEFF JOHNSTON [amyj66@sbcglobal.net]
Sent: Tuesday, September 30, 2008 7:12 AM
To: Barbieri, William J
Cc: cbambini
Subject: Pure Power

Dear Bill,

Congratulations on the one year anniversary of the Pure Power program!

Our family is thrilled that we have chosen to participate in this program and know that our support is making a difference in funding alternative energy sources. Taking care of our environment is such an enormous task and I feel that Pure Power is doing its part by providing clean power.

I'm constantly telling others about Pure Power and my statement is always, "why would you not sign up...it just makes sense".

So thank you for your fortitude, your ingenuity and your dedication to providing something better for your customers.

Sincerely,

Amy Johnston
Pure Power's First Residential Customer

Barbieri, William J

From: cbambini
Sent: Monday, September 29, 2008 8:21 AM
To: Barbieri, William J
Subject: FW: Pure Power

From: patrick.juelich@gmail.com [mailto:patrick.juelich@gmail.com] **On Behalf Of** Patrick Juelich
Sent: Friday, September 26, 2008 11:26 AM
To: msorkin@post-dispatch.com
Subject: Pure Power

Michael:

While some complain about energy rate hikes, others choose to take issue with the externalities of energy production from fossil fuels, those being harmful carbon emissions and inefficient land use. The importance of clean air, a healthy environment and reducing the impact of global warming are extremely important causes for which millions of people who understand the environmental impacts and the externalities of energy production are passionately fighting for. The cheap price of coal doesn't include the billions of dollars the EPA spends regulating and monitoring emissions. Those Ameren customers who voluntarily enroll in the Pure Power program have a right, and in their own conscience feel they have a responsibility to support the development of renewable energy, through the purchase of green e certified REC's. Please do not confuse the issue of Ameren rate increases with the voluntary contributions of individual households and businesses who support the Pure Power program.

Sincerely,

Patrick

Barbieri, William J

From: Paul Wojciechowski [wojo@ci.clayton.mo.us]
Sent: Wednesday, September 24, 2008 3:54 PM
To: Barbieri, William J
Subject: Pure Power 1 Year Anniversary

Dear Bill,

Happy Anniversary to Pure Power! The City of Clayton is proud to have signed on to the Pure Power program. This initiative is a key look into the future for power generation. Clayton appreciates the staff you have provided to help us through the questions on the program and opportunity to make our city a little more green, and our events completely green.

Paul Wojciechowski, AICP, P.E.
Director of Public Works
Clayton Missouri

Barbieri, William J

From: Tom Flood [tflood@schlafly.com]
Sent: Tuesday, September 23, 2008 2:56 PM
To: Barbieri, William J
Cc: cbambini
Subject: Pure Power, of course

Hello Bill It has recently come to my attention that Pure Power will very soon turn 1 year old. That brought a smile to my face. In a way it seems like more than a year ago that we were all gathered on Ameren's parking lot, with an impressive turbine blade as the backdrop for the launch -- it seems so much has happened since then.

Bill, I want to thank you for bringing to St. Louis this important energy option. It has been a pleasure for us at Schlafly not only to participate, but also to work with Cindy and her crew at 3Degrees to help spread the word about supporting renewable energy. We're looking forward to being partners for a long time. Hopefully we'll get to the point when Pure Power, when renewable sources of energy, aren't seen as "alternative" at all, but just the normal way our (hopefully much smaller) energy demands are met.

You should all be proud of what you've done -- we really needed it.

Sincerely, Tom

Tom Flood
Properties and Sustainability Manager
Schlafly Beer
2100 Locust Street
St. Louis, MO 63103
314-443-9374

Barbieri, William J

From: Rick Hunter [rhunter@sagestl.com]
Sent: Monday, September 22, 2008 5:04 PM
To: Barbieri, William J
Subject: Congratulations

Hi Bill, congratulations to you and Ameren on the one year anniversary of Pure Power! Hard to believe how far the program has come in just one year.

I wanted to share with you how much we have appreciated what Pure Power has done for our company and for sustainability in our region.

The Pure Power program has given Sage the ability to use clean power on our new home jobsites. In addition, we are able to more easily get our clients started with Pure Power after they move into their homes. As a green builder, Pure Power has been instrumental in achieving our company's sustainability goals.

We have been really impressed with the marketing of the program; I think everyone has a very positive reaction to Pure Power. By associating our company name with that of Pure Power, our public perception is improved.

Perhaps most importantly, the Pure Power program is proving an effective way to move our region in a more sustainable direction. People are getting used to the idea that clean power is something to value and that it is possible to make a positive contribution without adding much to your monthly budget.

I also need to add that I am particularly pleased with the interaction I have had with Cindy Bambini – she has been a real pleasure to work with. Her energy and professionalism are one of the biggest assets of the Pure Power program.

Rick

Rick Hunter, *LEED AP*
 314.265.6143

SAGE
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Rick Hunter
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p 314.265.6143
 f 314.480.4898

www.sageSTL.com rhunter@sageSTL.com

12400 Olive Blvd. Suite 305 St. Louis, MO 63141

Barbieri, William J

From: OSMAN JR, GEORGE H [AG/1000] [george.h.osman.jr@monsanto.com]
Sent: Monday, September 22, 2008 8:37 AM
To: Barbieri, William J
Cc: cbambini
Subject: One Year Later

Bill,

I can't believe a year has gone by since Monsanto signed on as Pure Power's first large industrial user. It certainly doesn't seem that long.


Over the year, we have worked with Cindy Bambini in several ways, most notably in making sure our Pure Power credits were correctly accounted for and used for LEED points. You may be aware that we just received the Certification for our new Data Center, the third such certification in the country. We also expect to be notified in the next 60 days that our F Building renovation will receive its Silver Certification, an energy point of which was also derived from the Pure Power Program. Cindy has also addressed the Creve Coeur – Olivette Chamber of Commerce and provided enough Pure Power credits to make our Dinner Auction in June a totally Green event from a power consumption perspective. She is without a doubt a tireless and enthusiastic proponent of the program and a superb ambassador.

At this time, I intend to stay with the Pure Power Program and may dedicate some of those savings to an increased involvement if the results forecast for several energy initiatives currently under way on our Creve Coeur Campus are proven.

Again, congratulations on your first year, I anticipate many more to come.

George

George H. Osman Jr.
Director, St. Louis Site Operations
800 N. Lindbergh Blvd.
St. Louis, MO 63167
Office: 314-694-4166
Cell: 314-575-7909
Fax: 314-694-8363
E-mail: george.h.osman.jr@monsanto.com

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Barbieri, William J

From: Barbieri, William J
Sent: Thursday, October 09, 2008 5:05 PM
To: Tatro, Wendy
Subject: FW: Green Tips for the Do-It-Yourselfer

From: Herb'n Maid [mailto:info@herbnmaid.com]
Sent: Friday, September 26, 2008 2:05 AM
To: cbambini@3degreesinc.com
Subject: Green Tips for the Do-It-Yourselfer



Green resources for the do-it-yourselfer

Herb'n Living Newsletter
September 2008

in this issue

- :: Pure Power and Herb'n Maid: green up and save
- :: Green-Cleaned Business of the Month: EarthWays Center
 - :: Green tip hotline
 - :: Herb'n Maid cleaning products go DIY
 - :: The power of vinegar
 - :: Cool green upgrade: solar attic fan
 - :: Green jobs at Herb'n Maid

Greetings!

When I was a writer/producer at HGTV - Home & Garden Television, I became an obsessive do-it-yourselfer. My job gave me a sense of empowerment that if the folks on our shows could pull off those projects, then certainly I could, too.

So when I set out to green up my lifestyle, I approached it "DIY," too, but discovered there was a growing number of eco professionals in St. Louis I could learn from. You can,



Source: B RE 1-10

too, this Saturday at the Green Homes & Renewable Energy Festival. As a gold-level sponsor of the event, Herb'n Maid invites our clients and friends to come out and learn with us. There are exhibitors and workshops to give the do-it-yourselfer tools for greening up at home. Some tasks are, indeed, better left to the professional. And there will be several green service providers at the festival, too.

In keeping with the DIY spirit of the festival, this month's Herb'n Living Newsletter includes a small sampling of tips and resources for the do-it-yourselfer -- whatever your level of expertise and whatever your shade of green -- with a focus on renewable energy.

So read it, recycle it, and tell us how we can help you along the path to a cleaner, greener lifestyle.

Best,

Richelle White
co-owner/founder, **Herb'n Living LLC**

Pure Power is P.U.R.E. Genius!

Support renewable energy and save 10% from Herb'n Maid



An exclusive offer for Herb'n Maid Residential and Commercial Maintenance Cleaning Clients:

Sign up for Pure Power from AmerenUE before October 31st and receive 10% off one Herb'n Maid maintenance cleaning.

Signing up for Pure Power makes it possible for you to contribute to a better environment and a stronger economy in our region. The average residential customer who enrolls for a year will reduce carbon dioxide emissions by more than 22,000 pounds... the same environmental benefit provided by two acres of forest every year or taking two cars off the road each year.

In addition to keeping our environment clean and healthy, supporting renewable energy diversifies America's energy supply, protects valuable natural resources for future generations and provides economic benefits to local schools and farmers. With so many important reasons to choose renewable energy, it's easy to be a Genius and sign up today.

Herb'n Maid is a proud participant in Pure Power and is pleased to reward our clients who join us in supporting renewable energy efforts in our community. E-mail us to let us know you've signed up!

(Offer is for new enrollees in Pure Power and does not include current Pure Power customers.)

Meet EarthWays Center:

An Herb'n Maid Green-Cleaned Organization

Herb'n Maid for the Do-it-yourselfer

Our herbal cleaners, your elbow grease



The **EarthWays Home**, a three-story Victorian residence built in 1885 at 3617 Grandel Square, was renovated in 1994 to showcase practical demonstrations of energy efficient systems, recycled products and waste reduction practices. Today this handsome educational facility houses EarthWays Center, a division of the Missouri Botanical Garden.

Systems and products in the **EarthWays Home** offer visitors a springboard to rethink product design and building operations to achieve affordable resource efficiency. Visitors will experience hands-on applications of sustainable lifestyle choices. Most features of the EarthWays Home are readily available for use in general construction and renovation. Examples of things to see:

- energy-efficient lighting sources
- recycled and non-toxic products
- water-saving fixtures
- recycling and composting systems
- energy-efficient window options
- blown-in cellulose insulation
- photovoltaic solar system powering high-efficiency kitchen appliances and exterior lighting
- geothermal heating and cooling
- high-efficiency gas furnace
- native plant landscaping
- water and energy saving Green Roof
- recycled-plastic lumber garden beds
- energy-efficient fireplace options
- on-demand water heating
- sustainable flooring options

See it for yourself during the **Green Homes & Renewable Energy Festival** or during monthly EarthWays Home Public Tours (3rd Saturday & Sunday each month). Visit www.earthwayscenter.org for tour times, pricing, and information.

Green living questions, asked & answered

Guest article submitted by EarthWays
Center



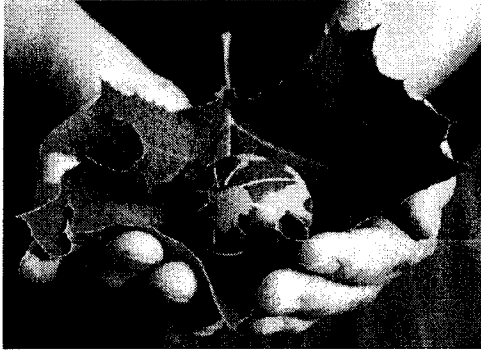
Come out and meet members of the Herb'n Maid team this Saturday from 10 a.m. to 6 p.m. at the Green Homes & Renewable Energy Festival. We'll be showing off our line of eco-luxurious cleaning products, handcrafted in small batches... right here in St. Louis.

This Saturday only, our **Herb'n Maid Green Cleaning Starter Kit** will be available to the general public. Normally reserved for purchase by our residential and commercial cleaner service clients, the kit includes 22oz bottles of Herbal All Purpose Cleaner, Herbal Wood Cleaner, and Herbal Glass Cleaner, plus a set of three plush, microfiber cleaning cloths, stylishly and eco-consciously presented in an **Herb'n Maid** reusable grocery bag.

Also available at our festival booth are individual 22oz bottles of our products, all of which are made with pure botanicals and ingredients whose names you can actually pronounce. *Wintergreen. Tangerine. Juniper berry.* Our herbal cleaners work hard in your home, are gentle on the planet, and also happen to smell amazing.

If you can't make it out to the festival, you can also find our products at these select retailers: **Wattle & Daub's** (Brentwood), **Four Muddy Paws** (Lafayette Square), and **Local Harvest Grocery** (Tower Grove).

The power of vinegar Green cleaning from the grocery aisle



EarthWays Green Resources Coordinator Hope Breidenbach takes questions from people seeking to green up and helps them find information on sustainable products and practices.

"People simply email or call in for information," explains Breidenbach. "I will direct them to websites, local organizations or companies, to assist in their quest for Green choices."

Breidenbach notes that trends in caller questions reflect local advances in the business of going Green, such as in the homebuilding industry. "We receive a lot of calls from people looking to build a new home or planning a home remodeling project. They ask about local service providers and availability of products from pervious paving materials to roofing to rain barrels - and more!

"We're also getting a lot of questions about renewable energy applications, such as solar power. People are especially interested in finding local installers. With renewable energy options increasingly in the news, there's a huge demand for opportunities to learn more locally about all the ways to use solar energy."

Recycling is a perennial topic, too, with many callers expressing concern about options to properly dispose of burned-out compact fluorescent light bulbs. These energy-saving bulbs contain trace amounts of mercury, so people want a responsible alternative to the household trash bag. Breidenbach refers callers to a new national recycling program that allows individuals to bring unbroken CFL bulbs to the customer service counter of any Home Depot store, where bulbs are accepted for recycling at no charge.

The Green Resources service provides a valued learning opportunity for the EarthWays Center staff, too. "There are so many innovations occurring all the time," says Breidenbach. "Responding to public questions helps us continually grow our knowledge base - and improve the ways we communicate about sustainability."

Email your questions to Hope at greenresources@mobot.org or call 314-577-0225.



It would have been at least a little bit funny if she hadn't been so upset when she called me.

My mother's dog had tracked mud across her plush, ivory carpet. So... she reached for a bottle of vinegar to treat the stains. Unfortunately, it wasn't **distilled white vinegar**. So she was left with colored stains from the colored vinegar. Learn from Mom's mistake: **use only clear, distilled white vinegar for your cleaning.**

Here are some more tips for green cleaning with vinegar.

- DIY toilet bowl cleaner: Use pure vinegar to get rid of rings.
- DIY window cleaner: Mix vinegar and water at a 1:4 ratio.
- DIY all purpose and mildew cleaner: Mix vinegar and water at a 1:1 ratio. **Never use vinegar on granite, marble, or other porous surfaces.**
- DIY fabric softener: Add 1/2 cup to the rinse cycle.

By the way, if you're not wild about the smell of vinegar, fear not. The smell disappears as the vinegar dries, so your home won't be left smelling like a pickle.

Herb'n Inspiration

Solar Powered Attic Fan is a cool green upgrade

When Herb'n Maid clients Tom Barkman and Tracy Stamer added a solar powered attic fan to their U.City home, the neighbors started talking.



Powered by the sun, their new fan cools the attic, which means the home's AC doesn't have to work as hard to cool the rest of the house. The fan saves energy and money and lightens your carbon footprint.

Want to try it at home? Learn more here.

Green is the new black!

Green collar jobs at Herb'n Maid

A green collar job is a job you can feel good about at the end of the day. It's an opportunity to perform a service that conserves resources, practices environmental responsibility and treads lightly on the planet. Some analysts predict green collar jobs are the way of the future, but in St. Louis, green collar jobs are in the here and now.

Herb'n Maid is currently searching for *amazing* individuals to add to our team. Prior cleaning experience is appreciated but not required. What *is* required is a passion for responsible living, a strong and proven work ethic and a keen eye for detail. Also required: reliable transportation and the ability to lift at least 50 pounds without assistance. For the peace of mind of our clients, we conduct criminal background and reference checks.



These are part-time contractor positions. Pay is highly competitive and the hours are flexible. The college students who work with us say it's the perfect job for a student. And the former stay-at-home moms who work with us say the flexibility is just what they need to enjoy time with their kids. Maybe a green collar job is perfect for you, too.

Please review our [web site](#) to learn more about our company and our mission. If it sounds like something you'd like to be a part of, e-mail your resume and coverletter to info@herbnmaid.com. Resumes without coverletters are not accepted, and coverletters must include the following information:

- 1) Why do you want to work with Herb'n Maid?
- 2) What days and times are you available to work each week?
- 3) What are you currently doing to try to live more green?

Herb'n Maid is an equal opportunity employer.

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Schedule WJB-RE1-14

From: Terri F. Reilly [mailto:tfr@stlouisearthday.org]
Sent: Monday, September 29, 2008 7:01 PM
To: msorkin@post-dispatch.com
Subject: Pure Power

As the executive director of St. Louis Earth Day, we recommend the Pure Power program to the businesses we consult for through our Green Business program, as well as restaurants through our Green Restaurant program. It's a great way for the business community to be actively involved in sustainability.

Please let me know if you have any questions.

With gratitude...TFR

*Terri F. Reilly | TFR
Executive Director
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tfr@stlouisearthday.org
www.stlouisearthday.org*

Barbieri, William J

From: cbambini
Sent: Tuesday, September 30, 2008 11:17 AM
To: Barbieri, William J
Subject: last one - posted as a comment to the article on the web.

John Bickel

"I'm a Pure Power customer, and it was a choice for me to participate. Why does the PSC care about a voluntary program? Should they not be more concerned about the rate issues they have recently proposed? Are there not other companies that use marketing companies to raise awareness about their business?"

Cindy Bambini
Senior Ameren Partnership Manager
3Degrees

Take Action. Visit our new carbon footprint calculator: www.3degreesinc.com/carbon_calculator

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Bringing Climate Solutions Down To Earth.

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F: 415.680.1561
3degreesinc.com

DATE: September 30, 2008
TO: Bill Barbieri, Manager Renewables, AmerenUE
FROM: Adam Capage, Director of Utility Partnerships, 3Degrees
RE: Financial Information for Pure Power Program

The enclosed Program Statement provides the financial information 3Degrees agreed to disclose about the Pure Power program. These data confirm that 3Degrees is spending considerably more than the Missouri PSC's projection to support the development of new, renewable energy facilities in Missouri, and the region. In fact over the five year program the weighted average REC cost is projected to be [REDACTED] per MWh. These data also confirm that educating customers about renewable energy requires considerable up front investment, risk, and patience - it is only in the final years of the contract that 3Degrees expects to earn solid returns on the company's investment and the risk it is bearing. A separate document also follows that lays out comparative information on Pure Power and other voluntary green pricing programs in the region as well national aggregate market data.

In addition to reviewing the specific numbers in the Program Statement, 3Degrees believes it will be important for the Missouri PSC to understand the dynamics of REC markets, and the economics of operating a green pricing program. The points below provide this context.

Understanding REC Supply Costs

- Apart from the underlying cost of the RECs that 3Degrees procures for Pure Power, there are material ancillary costs associated with sourcing, negotiating, contracting, collateralizing, settling, carrying, administering, and certifying Pure Power's REC portfolio. It is in 3Degrees' best interests to minimize these costs, but they are unavoidable and would be borne by any entity procuring RECs for Pure Power, including Ameren. 3Degrees can cost-effectively provide these services to Pure Power only because it spreads these costs across its entire portfolio, which is many times larger than what is required for Pure Power.
- The REC markets are highly volatile and there are substantial risks associated with fixing a forward price for 5 years to supply

an unknown quantity of RECs. There are no exchanges or standard financial instruments with which to hedge REC market exposure, so 3Degrees must aggressively pursue forward contracts and manage any eventual long or short position against Pure Power volume on the spot market. Moreover, there are Renewable Portfolio Standards (RPS) in place in Minnesota, Wisconsin, Iowa, Illinois and prospective standards in Michigan, Indiana, North Dakota, South Dakota, and Missouri, leaving fewer and fewer RECs available to the voluntary market. 3Degrees insulates Ameren and its Pure Power customers from this exposure so that the \$15 per MWh rate can remain unchanged for five years and so that the program is cost neutral to non-participating customers.

- Providing local supply is a valuable benefit but comes with more risk, particularly in light of the volume, market, regulatory, and counterparty risks mentioned above. Pure Power will always have a minimum of 50% of supply coming from Missouri or Illinois. 3Degrees has substantially exceeded this floor thus far, and 3Degrees intends for this to continue to be the case in the future. All supply will come from within the MISO power pool. Local sourcing requirements increase the price of RECs and increase the risk to 3Degrees that the price will be substantially higher in future years.
- When Ameren first awarded 3Degrees the Pure Power contract, 3Degrees went to work to source RECs from Missouri.

[REDACTED]

Those RECs were ultimately sold to Associated Electric Cooperative as part of a power purchase agreement for the power and RECs, but 3Degrees' competitive market participation certainly played a role in price discovery for the then nascent Missouri wind REC market. 3Degrees has since sourced the majority of Pure Power's RECs from Associated Electric from those first wind farms, Bluegrass Ridge (2007), Cow Branch (2008), and Conception (2008).

[REDACTED]

- 3Degrees is playing the same role today with a variety of other project developers: where 3Degrees does not win a bid, its market participation in and around Missouri serves to drive up

- One of the benefits of green pricing programs like Pure Power is that they provide an opportunity to educate the public about renewable energy. This is valuable ancillary benefit that is entirely above and beyond the value of supporting the development of renewable energy projects.
- Well-managed green pricing programs are frequently Green-e® Energy Certified by the independent, non-profit Center for Resource Solutions. Pure Power has been certified precisely so that questions about the program supply can be addressed by an independent entity other than 3Degrees or AmerenUE. Pure Power follows stringent requirements for fully disclosing the source of all program supply, only utilizes “new” resources built since 2002, significantly supports local resources, and follows the best practices for disclosure on marketing materials about the program. Also, as part of the Green-e® Energy Certification requirements, Pure Power supply sources and marketing materials are audited annually.
- Pure Power is the lowest cost voluntary green pricing program in Missouri and the only Missouri program that is Green-e Energy® Certified.
- The RECs consumed by Pure Power program participants are permanently retired and thus cannot be claimed by other utilities towards any voluntary goal or mandatory law that exists today or could arise in the future. For example, should Missouri enact a mandatory RPS in the future, the RECs consumed and retired by Pure Power will be “off limits” to any entity seeking RECs or renewable generation to satisfy a compliance obligation forcing them to seek new sources of bundled renewable supply, RECs, or to build new renewable energy facilities. This is one of several ways that voluntary REC markets help support the development of new renewable energy generation.

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Facts about Voluntary Utility Green Pricing Programs¹

- 750 utilities offer a voluntary green energy option in 38 states
- The average price premium is 2.1¢/kWh above standard rates
- Collectively, utilities in regulated electricity markets sold over 3.4 billion kWh of green power to customers in 2006. Green pricing program sales to all customer classes grew by 39% in 2006.
- Collectively, utilities purchased more than 1.7 billion kWh of Renewable Energy Certificates (RECs) to serve green power customers in 2006, an increase of 70% over 2005.
- Renewable energy sold through green pricing programs in 2006 represents an equivalent renewable energy capacity of more than 1,100 MW, with more than 1,000 MW of this represented by "new" renewable energy resources.
- At the end of 2006, about 570,000 customers were participating in utility green power programs nationally, an increase of 25% over 2005.
- 142 utility green pricing programs are Green-e Energy® Certified, with pending applications of another 67.²
- According to the US Environmental Protection Agency the purchase of 1 REC (1 REC = 1 MWh of renewable energy production) results in the avoidance of 1,714 lbs. of carbon dioxide due to the displacement of the need for an equivalent MWh of average grid power.³ This figure is a national average non-baseload CO2 emissions rate. EPA also recommends green power purchasers to calculate emission displacement based on non-baseload CO2 emissions rates of the specific eGRID subregion in which the renewable generation occurs.

¹ Sources: *Green Power Marketing in the United States: A Status Report (Tenth Edition)*, NREL, 2007; *Trends in Utility Green Pricing Programs*, NREL, 2006.

² Communication with Green-e Energy staff at Center for Resources September 26, 2008.

³ U.S. EPA the Emissions & Generation Resource Integrated Database (eGRID).

Facts about AmerenUE Pure Power Program

- Price premium: 1.5¢/kWh - lowest cost voluntary green pricing program in Missouri and Illinois.
- Certification and Verification: Green-e Energy® - Pure Power is the only Green-e Energy® certified utility program in Missouri.
- 100% of the RECs are sourced from new renewable facilities.
- Eligible geographic sourcing of RECs per Green-e standard: Midwest Independent System Operator (MISO⁴).
- Geographic sourcing of RECs committed by AmerenUE: 50% Missouri / Illinois, 50% MISO.
- Actual geographic sourcing of RECs to date:
 - 2007: 100% Missouri
 - 2008: 90% Missouri / 10% MISO
 - 2009-2012 Projected: 75-100% Missouri / 0-25% MISO
- Minimum new date of eligible renewable facilities per Green-e: 1997
- Minimum new date of renewable facilities supplying RECs to Pure Power committed by AmerenUE: 2002
- Actual online date of facilities supported to date: 2005-2007
- Names, locations, and fuel types of renewable facilities supported to date by Pure Power:
 - Bluegrass Ridge Wind Farm, King City, MO
 - Noble Hill Landfill, Springfield, MO
 - Century Wind Farm, Wright, IA
- Launch date of Pure Power: October 1, 2007
- Length of program: 5 years
- Customers enrolled to date: 4,000 residents and 150 businesses
- Megawatt hours (MWh) of RECs subscribed to date: 22,900
- Green-e Verification Audits completed: Reporting Year 2007
- Customers can learn more about the Pure Power program at www.ameren.com/PurePower

⁴ The Midwest ISO is an independent, nonprofit organization that supports the constant availability of electricity in 15 U.S. states and the Canadian province of Manitoba. www.midwestmarket.org

Missouri Voluntary Utility Green Pricing Programs⁵

Utility Name	Program Name	Type of Renewables	Start Date	Premium Charged	Third Party Certification & Verification
AmerenUE	Pure Power	Wind, Landfill Gas	2007	1.5¢/kWh	Green-e Energy®
Associated Electric Cooperative, Inc. (numerous utilities)	Varies by utility	Wind, biomass	2003	2.0-3.0¢/kWh	None
City Utilities of Springfield	WindCurrent	Wind	2000	5.0¢/kWh	None

⁵ U.S. DOE National Renewable Energy Laboratory
<http://apps3.eere.energy.gov/greenpower/markets/pricing.shtml?page=1>

Illinois Utility Green Pricing Programs⁶

Utility Name	Program Name	Type of Renewables	Start Date	Premium Charged	Third Party Certification & Verification
Prairie Power (formerly CCS/Soyland) 8 of 11 coops offer program	EcoEnergy	Wind	2005	3.0¢/kWh	None
City of Naperville	Renewable Energy Option	wind, small hydro, PV	2005	2.5¢/kWh	None
City of St. Charles http://www.st-charles.il.us/	TBD	wind, landfill gas	2003	Contribution	None
Dairyland Power Cooperative: Jo-Carroll Energy/Elizabeth	Evergreen Renewable Energy Program	wind, landfill gas, biomass, small hydro	1998	1.5¢/kWh	None

Example of recent state utility commission approval of green tariffs

Kentucky Power Receives Green Pricing Approval from the Kentucky Public Service Commission, August 26, 2008.

http://psc.ky.gov/agencies/psc/press/082008/0826_r01.pdf

⁶ U.S. DOE National Renewable Energy Laboratory
<http://apps3.eere.energy.gov/greenpower/markets/pricing.shtml?page=1>

For Further Reading and Additional Background

U.S. DOE National Renewable Energy Laboratory (NREL) and U.S. EPA Reports:

Green Power Marketing in the United States: A Status Report (Tenth Edition) (PDF 2.1 MB) NREL

Trends in Utility Green Pricing Programs (2006) (PDF 786 KB) NREL

Guide to Purchasing Green Power (PDF) (2004) (50 pp, 1.1MB) EPA

Interaction of Compliance and Voluntary Renewable Energy Markets (PDF 1.1 MB) NREL

Implications of Carbon Regulation for Green Power Markets (PDF 982 KB) NREL

The Treatment of Renewable Energy Certificates, Emissions Allowances, and Green Power Programs in State Renewable Portfolio Standards (PDF 292 KB) NREL

A Preliminary Examination of the Supply and Demand Balance for Renewable Electricity (PDF 600 KB) NREL

Source: <http://apps3.eere.energy.gov/greenpower/>

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EPA's Green Power Partnership Renewable Energy Certificates



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1200 Pennsylvania Ave, NW (Mail Code 6202J)
Washington, DC 20460
www.epa.gov/greenpower



Schedule WJB-RE3-1

Last updated: July 2008

Many people and organizations are willing to pay for electricity that is produced on their behalf using cleaner, renewable sources of generation. These buyers often find renewable electricity attractive for its environmental and greenhouse gas reduction benefits when compared to conventional fossil fuel-based electricity generation.

Both individual and organizational buyers have several green power product options available. These include buying renewable energy certificates (RECs) by themselves, buying RECs along with physical electricity from their utility service provider, or developing onsite renewable projects that produce both electricity and RECs together. RECs in particular have become an important choice for buyers of green power nationwide and serve as the “currency” for renewable energy markets.

This document provides a review of RECs: what they are, how they work, and why they are an important option for individual and organizational buyers in renewable electricity and green power markets.





EPA's Green Power Partnership

Renewable Energy Certificates



What Are RECs?

RECs represent the environmental and other non-power attributes of renewable electricity generation and are a component of all renewable electricity products. RECs are measured in single megawatt-hour increments and are created at the point of electric generation. Buyers can select RECs based on the generation resource (e.g., wind, solar, geothermal), when the generation occurred, as well as the location of the renewable generator.

RECs provide key information about the generation of renewable electricity delivered to the utility grid. Since RECs represent only the environmental or non-power attributes of renewable electricity generation, they are not subject to electricity delivery constraints. The information conveyed by a REC allows buyers to make specific environmental claims about how their electricity is produced. RECs usually include the following primary attributes and information:

- The type of renewable resource producing the electricity
- The vintage of the REC (i.e., the date when it was created)
- The vintage of the renewable generator, or the date when the generator was built
- The renewable generator's location
- The RECs eligibility for certification or renewable portfolio compliance
- The renewable generation's associated greenhouse gas emissions (if any)

RECs are increasingly seen as the "currency" of renewable electricity and green power markets. They can be bought and sold between multiple parties, and they allow their owners to claim that renewable electricity was produced to meet the electricity demand they create.

A REC represents and conveys the environmental and other non-power attributes of one megawatt-hour of renewable electricity generation.

Increasingly, federal, state and local governments are also using RECs as a credible means to meet environmental goals for renewable energy generation. For example, most states allow utilities to use RECs to meet mandated state renewable portfolio standards. State renewable portfolio standards require that a percentage of a utility's electricity generation comes from renewable resources. Increasingly, individuals and organizations are also buying RECs to satisfy a number of other environmental and non-environmental goals:

- Avoid the carbon dioxide (CO₂) emissions associated with conventional electricity use
- Reduce some types of air pollution
- Hedge against future electricity price increases for onsite and some utility products
- Serve as a brand differentiator
- Generate customer, investor, or stakeholder loyalty and employee pride
- Create positive publicity and enhance public image
- Demonstrate civic leadership

How Do RECs Work?

To understand how RECs work, it is helpful to understand how electricity is delivered across the utility grid, as well as what makes renewable electricity generation attractive to individuals and organizational buyers.

Within the United States, electricity demand is met by various types of generation technologies and fuel resources. These electricity generators feed electrons onto the utility grid for delivery to consumers through a complex network of wires and distribution infrastructure. Because the electrons produced from the different technologies and fuel resources are physically the same, it is impossible for individuals or organizations to know what type of generation technology or resource produced the electricity that reaches their particular facility.

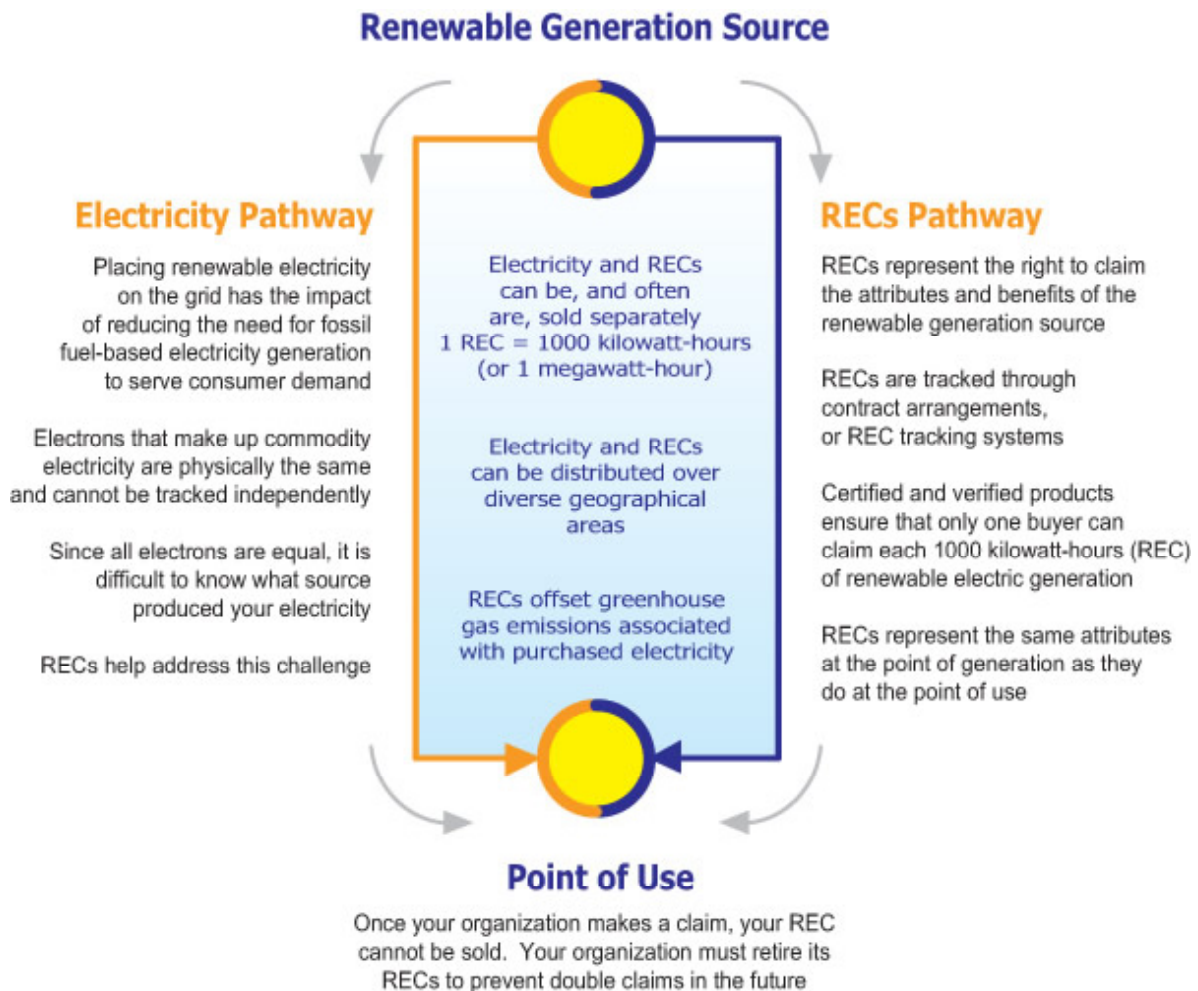
EPA's Green Power Partnership: Renewable Energy Certificates

RECs help address the issue that the electricity or electrons a consumer receives from their utility does not identify how the electricity was generated. RECs were created to help convey the attributes of electricity generated from renewable resources to buyers. Analogous to the utility delivering the physical electricity through wires, RECs serve as the means to deliver the environmental and non-power attributes of renewable electricity generation to buyers – separate from the physical electricity. (See Figure 1.) All renewable electricity generation can be viewed as having two separate parts:

1. The commodity electricity or electrons
2. The environmental and other non-power attributes of generation represented by a REC

Because RECs are monitored and verified, individuals and organizational buyers can buy RECs and be confident that electricity generated on their behalf was done so with renewable energy resources.

Figure 1



Why Are RECs an Important Option for Consumers?

Individuals and organizations may find that buying RECs separately from their electricity service is a useful way to tap into green power markets. More than half of U.S. electricity customers have an option to purchase some type of green power product from a retail electricity provider, but the rest do not have that choice. RECs provide buyers the option to select renewable resources to meet their electricity demand.

For example, in states that have restructured electricity markets, consumers can often buy green power products by switching electric service providers if their current provider does not offer a green power product. If consumers do not wish to switch electric service providers they also have the option to buy RECs separately from their existing electricity service. This approach allows buyers to avoid the environmental impacts of their electricity, since the REC represents a specific amount of avoided greenhouse gas emissions.

RECs can also be purchased in situations where a utility green power product is available, but this utility product does not have the desired environmental characteristics, resource base, or price. RECs provide more choices and more competitive prices because they are not constrained by where they are created or by transmission bottlenecks.

Who Owns a REC?

A REC can be bought and sold between buyers and sellers from its generation to its final point of application or use at a facility. Typically, regional tracking systems register RECs in order to keep track of how much renewable electricity was produced.¹ Tracking systems assign each REC a unique number, which matches the REC to its current owner. Alternatively, buyers can use third-party audits to confirm the contractual chain of ownership between multiple parties. REC contracts typically include a statement, or attestation, from the seller that the RECs have not been sold to, and cannot be claimed by, another party.

What Is the Difference between Renewable Electricity and Green Power?

Renewable electricity is produced from resources that do not deplete when their energy is harnessed, such as sunlight, wind, waves, water flow, biological processes such as anaerobic digestion (e.g., landfill gas), and geothermal energy. Renewable electricity resources are distinct from fossil and nuclear fuels, which are also used to generate electricity.

EPA defines green power as a subset of renewable electricity and represents those renewable resources and technologies that provide the highest environmental benefit. Green power is renewable electricity produced from solar, wind, geothermal, biogas, biomass, and low-impact small hydroelectric resources. Definitions for renewable energy can vary and may include resources that are acknowledged or perceived to have environmental impacts, such as land use and fisheries impacts of large hydro dams.

RECs are a credible and easy way to keep track of who can claim the environmental attributes of renewable electricity generation through electronic tracking systems. Because RECs are carefully counted, tracked and associated with an owner, no two buyers can legally claim the same environmental benefits of the renewable electricity generation.

Once a buyer makes an environmental claim based on a REC, the buyer can no longer sell the REC and the REC is considered permanently “retired.” Buyers can also have their RECs retired in their name by their supplier to ensure that no other entity can lay claim to the same environmental benefits.

¹ Regional tracking systems have been put in place to monitor electricity generation across the United States. A REC is produced for every megawatt-hour of electricity generated from a renewable resource and is assigned a tracking number within the system. The tracking number stays with the REC and is transferred between buyers and sellers until a final owner makes a claim, at which time the REC is considered “retired” in the system.

EPA's Green Power Partnership: Renewable Energy Certificates

Consumers or organizations with onsite renewable electricity systems should be clear about who owns the RECs produced by the onsite system. If the onsite system owner wants to make an environmental claim about the use of renewable electricity from the onsite system, they should ensure that they have and retain ownership of the RECs produced by the onsite renewable electricity system. If the onsite system owner uses the system-produced electricity, but sells the RECs to another party, they are no longer using green power and cannot make a claim to be doing so.

Are There Standards for RECs?

There are a number of third-party organizations in the market that certify RECs. As a best practice, EPA recommends that buyers seek out certified products as a form of buyer protection. Certified RECs should meet national standards for resource content and environmental impact. Certification answers the question “Does this product meet accepted standards for quality?”

Who Sells RECs?

RECs and the attributes they represent are an ingredient of all green power products. REC providers—including utilities, REC marketers, and other third-party entities—may sell RECs alone or sell them bundled with electricity. As of 2007, more than 50 percent of utility customers have access to green power bundled products, whereas all customers have access to buying renewable energy certificates.

Buyers can identify green power suppliers using EPA's Green Power Locator tool: www.epa.gov/greenpower/pubs/gplocator.htm

Green Power Product Provider/Source	Geographic Availability	Renewable Energy Certificate	Physical Electricity
REC Marketers	Nationally Available	✓	
Utility Green Pricing Programs	Unrestructured Electricity Markets	✓	✓
Utility Green Marketing Programs	Restructured Electricity Markets	✓	✓
Onsite Renewable Electricity Systems	Any Grid-Connected Point of Use	✓	✓