

Increasing
Residential Demand-Side Management
Participation

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A Case Study: Prince William County

Preliminary Analysis

July 13, 2007

Submitted by:

Barbara Kessinger
15033 Walking Stick Way
Haymarket, Virginia 20169
bgkessinger@comcast.net

As an Ordinary Citizen Not Affiliated with any Association or Organization

State Corporation Commission PUE-2007-00049 Workgroup

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Introduction

This Case Study summarizes to date the development of an ongoing, well-coordinated effort in Prince William County, Virginia, to increase the number of households participating in residential demand-side management. Most of this effort thus far has revolved around the establishment of an intra-county network, the identification of communities and organizations through which information could be channeled, and trial attempts to educate others about existing programs using various media in different settings.

Citizens have focused on NOVEC's load management program and the switches installed on air conditioning units as part of that program for several reasons. First, the majority of Prince William County residents receive their electricity through NOVEC. Second, the Coop has offered its load management program continually since 1979. Third, NOVEC actively promotes its program using a brochure that is written in clear and concise language (see Attachment 1). Fourth, the Coop has contracted with several developers in recent years so that its switches can be installed as new homes are built. Finally, NOVEC is willing and able to provide baseline information regarding the number of household participants and the number of switches installed.

Summary

I. Intra-County Network Was Established (January - March 2007)

A. Residents

A core group of county residents who wanted to coordinate an effort to assist the electric grid was identified.

B. Elected Officials

Supervisor John Stirrup, Gainesville District, assumed a leadership role.

C. Public Works Department Personnel

Matt Groff, Management & Fiscal Analyst III, assumed a leadership role.

D. Electric Cooperative Representatives

NOVEC's Mike Dailey, Bob Cornwell, Bob James, and Mike Curtis were identified as individuals who could assist citizens in this effort.

Establishing this intra-county network (see Attachment 2) has encouraged the free flow of information between participants at all levels and will facilitate the inclusion of more participants over time.

II. Efforts Were Coordinated.

A. Citizens addressed Board of County Supervisors (BOCS) regarding their energy concerns.

B. PWC Matt Groff made PowerPoint Energy Presentation before BOCS (4/3/07).

C. PWC Supervisor John Stirrup introduced Energy Efficiency Resolution, which was approved by BOCS (4/10/07).

D. Citizens continued to educate themselves regarding energy issues.

III. Communities and Organizations in Prince William County Were Identified.

The county maintains lists of these communities and organizations.

IV. Dominion Valley Was Identified as an Appropriate Community to Study.

This is a large community where many homes already have switches installed. Since mid-2005, NOVEC has contracted with Toll Brothers, the developer, so that its a/c switches can be installed after new homes are built.

V. Electric Cooperative Representatives Were Consulted.

- A. Obtained summary of NOVEC's demand response programs (3/30/07).
- B. Obtained residential load management brochures: color copies and a pdf file.
- C. Obtained baseline information for Prince William County and for Dominion Valley Community re: number of households enrolled/ number of switches installed as of 3/31/07.
- D. Obtained NOVEC's a/c switches for my household (4/2/07).

VI. Enrollment in NOVEC's Residential Load Management Program Was Promoted (April 2007 to date)

A. Dominion Valley Community

- 1. Brochures were distributed to approx. 200 residents.
- 2. Information was posted on community web site.
- 3. Information was presented at community events/meetings.
- 4. Information was published in community newsletter.
- 5. Brochure in pdf file was emailed to approx. 50 residents.

B. Other Communities and Organizations in Prince William County

- 1. Other communities are promoting demand-side management:
Supervisor Stirrup spoke at Heritage Hunt's 5/2/07 annual meeting.
- 2. Energy meeting was held in Eastern Prince William County on 5/22/07 (coordinated by Barbara Kessinger).
- 3. Organizations are starting to promote demand-side management:
PWC Matt Groff gave his PowerPoint Energy Presentation at LOCCA-PELT's 6/28/07 monthly meeting.

NOTE: Other aspects of energy stewardship, e.g., replacing incandescent light bulbs with compact fluorescents, have been promoted alongside this effort to increase demand-side management participation.

Evaluation

During the three-month period between April 1, 2007, and June 30, 2007, approximately 73 additional households in Dominion Valley were enrolled in NOVEC's load management program. The total number of Dominion Valley residents enrolled in NOVEC's program increased from 523 to 596 – almost a 14% increase.

I will be conducting a citizen survey of Prince William County residents who live in NOVEC's electric service area during the month of September 2007 to determine the motivation for their enrollment or non-enrollment, the effectiveness of various media used in different settings to promote the program, and the satisfaction or dissatisfaction of participants with the enrollment process and the operation of the program itself. Data compiled from responses to survey questions will be presented directly to NOVEC and also to the SCC. I would welcome comments and suggestions regarding the draft format for this survey (see Attachment 3).

During the next three-month period between July 1, 2007, and September 30, 2007, as more core citizens willing to promote demand-side management in communities and organizations throughout the county are identified, one would expect increased levels of demand-side management participation to occur.

Conclusion

The long-term citizens' goal of this effort in Prince William County is to double the number of households participating in NOVEC's residential load management program. This effort could be duplicated in other medium to large-sized counties in the Commonwealth where the primary electricity service provider offers and promotes a demand-side management program similar to NOVEC's load management program.

Attachments: Three

Load management is your silent partner in holding down the cost of electricity. NOVEC introduced this innovative program in 1979 as one of the first of its kind in the nation. During NOVEC's peak demand for electricity, the switch turns your water heater off for typically up to two hours and/or your central air conditioner off for 7^{1/2} minutes out of every half-hour. The peak demand periods usually occur only a few days each month and last for a few hours. To date, more than 45,000 load management switches have been installed in homes by qualified service technicians.

The majority of load management participants are never inconvenienced by the switch. Most customers actually forget it's connected after a few months because there is no change in the hot water availability or comfort level in the house.

In exchange for your voluntary participation in the Load Management program, you'll get quick response and same day electric water heater repair or air conditioner service evaluation at no cost.

HELP NOVEC HOLD DOWN COSTS

NOVEC purchases wholesale power based on the number of kilowatt-hours used during peak demand periods.

By joining the program you help NOVEC hold down the cost of providing power. These savings are passed on to you in the form of Cash Back, lower operating costs and reduced future rate increases.

ELECTRIC WATER HEATER REPAIR

If your water heater has ever malfunctioned, you know how inconvenient and expensive it can be to have it repaired. Without knowing the problem, you don't know whether to call an electrician or a plumber. What you do know is that it will cost you plenty of time and money.

As a load management participant, NOVEC will replace, at no cost to you, malfunctioning electrical parts on your water heater. These parts could include thermostats, elements, reset buttons and fuses. Replacing a leaking water heater is not covered since this is a plumbing problem.

For water heater repair, call NOVEC, 24 hours a day, seven days a week at 703-335-0500 or 1-888-335-0500.

FIRST CALL RESPONSE FOR AIR CONDITIONER PARTICIPANTS

If your air conditioner is not working, NOVEC will send a service representative to help diagnose the problem before you call a contractor. This evaluation is free. Simply call NOVEC, 24 hours a day, seven days a week at 703-335-0500 or 1-888-335-0500.

COMMONLY ASKED QUESTIONS

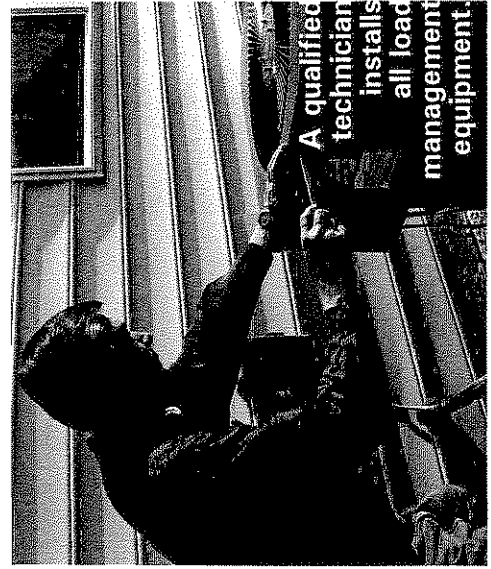
Q What do I gain by participating in NOVEC's Load Management program?
A You will help to conserve energy, stabilize rates, and reduce the chance of power shortages and rolling blackouts. In addition, you'll receive free electric water heater repair and a "first call response" service evaluation on your air conditioner for as long as you participate.

Q How do I join the program if I am the property owner?

A If you are the property owner, contact NOVEC's Energy Services Department at 703-392-1503 or 1-888-335-0500, extension 1503 to request a copy of the enrollment form. Rental property tenants must obtain the owner's permission and signature prior to joining the Load Management program.

Q How do I join the program if I live in an apartment community?

A Most energy-conscious apartment communities in NOVEC's service area already participate in the Load Management program. Check at your rental office or call NOVEC to find out if your complex participates.



A qualified technician installs all load management equipment.

Q How does the load management switch work?

A When activated by NOVEC, the switch cycles off the power to the water heater and/or air conditioner by means of a transmitted signal. This occurs only a few times each month on days with extremely high or low temperatures when there is an increased use of electricity.

Q What time of day will the switch be cycling the water heater and air conditioner?

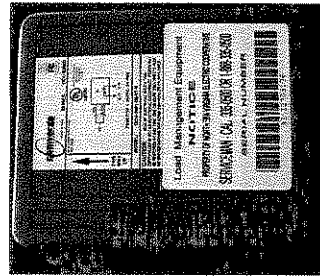
A Typically between 4:00 p.m. and 6:00 p.m. during the summer. In the winter, the water heater may be cycled between 7:00 a.m. and 9:00 a.m. and between 4:00 p.m. and 6:00 p.m.

Q Can I also use a water heater timer if I have the load management switch installed?

A Yes, provided the timer is connected between the load management switch and the service (fuse) panel. The load management installer will ensure that this is done properly.

Q Can I have a switch installed on my heat pump air conditioner?

A Yes. The switch only cycles the air conditioning function of the heat pump for short time periods. The unit's indoor fan will continue to circulate cool air to maintain a comfortable temperature.



A load management switch helps NOVEC conserve energy and control expenses.

Q What happens to the switch if I need to have my water heater or air conditioner replaced?

A Call NOVEC. We will send a qualified technician to your home to remove the switch and schedule a time to re-install it on your new equipment.

Q Will the installation of the load management switch save me money?

A There is no immediate savings or refund on your electric bill. However, the switch produces savings for NOVEC through a reduction in wholesale power costs. These savings are passed on to you in the form of Cash Back, lower operating costs and reduced future rate increases.

Q What should I do if I have no hot water or my air conditioner is not operating?

A Call NOVEC.

For More Information

Contact the NOVEC
Energy Services Department
Monday-Friday

8:00 a.m. to 5:00 p.m.

703-392-1503

1-888-335-0500, extension 1503

Send e-mail to
energyservices@novec.com

Load Management Program

NOVEC

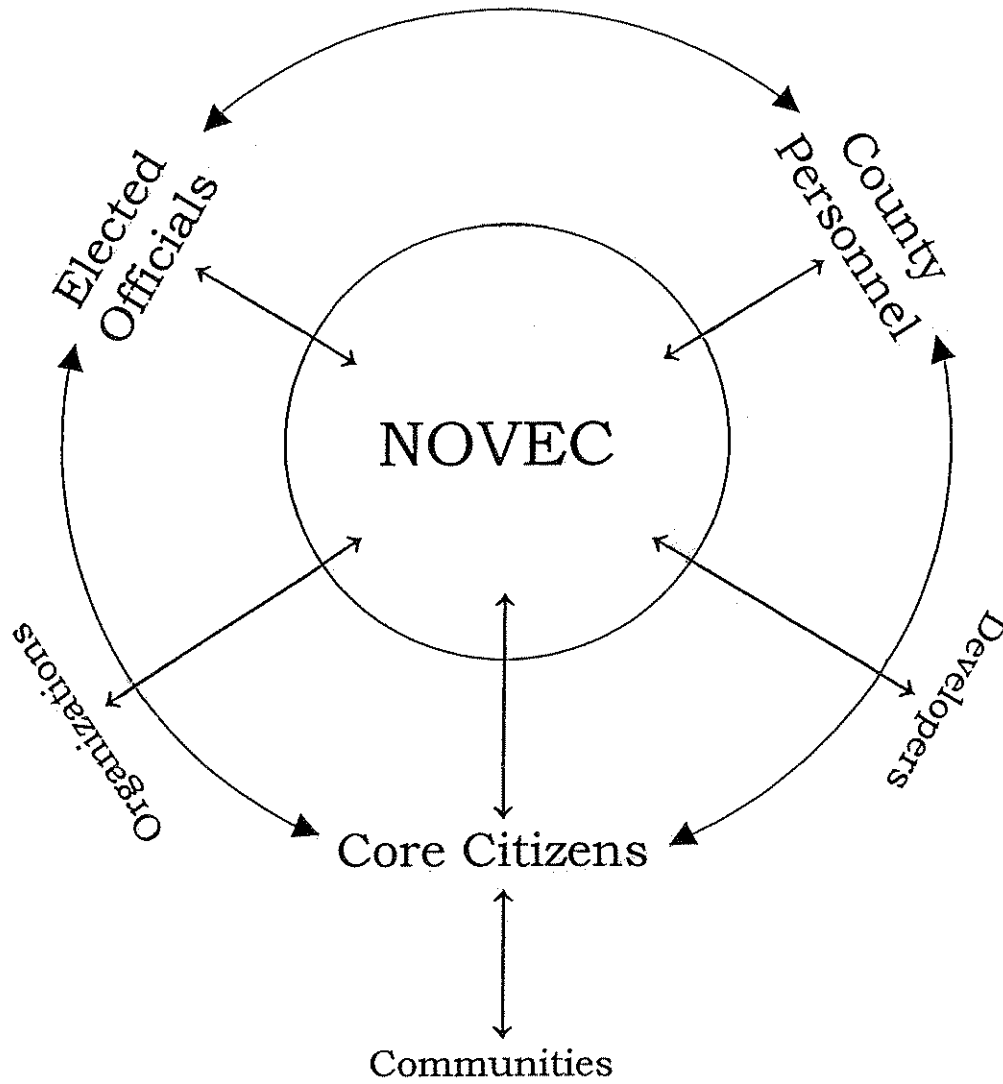
NOVEC

The Powerful Choice



Attachment 2.

Prince William County
Intra-County Energy Network



Prepared by:

Barbara Kessinger
Haymarket, VA

Attachment 3.

Citizen Survey Regarding Energy Stewardship
In Prince William County

Prepared by Barbara Kessinger

I am conducting this survey as an ordinary citizen not affiliated with any association or organization. The data you provide will assist individuals throughout the county who are coordinating efforts to promote greater energy stewardship. Also, I will be compiling responses to survey questions for presentation to NOVEC and to the Virginia SCC.

The first five questions of this survey pertain to NOVEC's residential demand-side management program, which uses switches installed on electric hot water heaters and air conditioning (a/c) units to reduce consumption during peak demand times. You may or may not be familiar with the program.

(1) Are you currently enrolled in NOVEC's load management program?

_____ No _____ Don't know _____ Yes

(2) If your answer to question (1) is "No," why haven't you enrolled in NOVEC's program?

_____ Didn't know program existed

_____ Know about program but can't enroll because I don't have an electric hot water heater or a central a/c unit

_____ Know about program but can't enroll because I don't have an electric hot water heater and my central a/c unit is not compatible with the switch

_____ Know about program but don't want to enroll because

(3) If your answer to question (1) is "Don't know," please call NOVEC's

Customer Service Department at (703)392-1503 to find out whether your household has been enrolled in the program.

(4) If your answer to question (1) is “Yes,” please answer the following set of questions; otherwise, please go to question (5).

(a) Why did you enroll in NOVEC’s program?

(b) How did you learn about the program? Please check all the ways you learned about the program before you decided to enroll?

- Can’t recall
- Received a brochure in the mail from NOVEC
- Received an emailed brochure from a friend, neighbor, etc.
- Received a brochure from someone who came to my door
- Heard about it at a community event or meeting
- Got a phone call about it
- Heard about it from a friend, neighbor, acquaintance, etc.
- Read about it on NOVEC’s web site
- Read about it in a newspaper article
- Read about it in a community newsletter/web site
- Other _____

(c) Of all the ways you learned about the program, which one do you feel most influenced your decision to enroll? _____

(d) When did you enroll in NOVEC’s program?

- Can’t recall
- Before July 1, 2005
- Between July 1, 2005, and Dec. 31, 2006
- Between Jan. 1, 2007, and June 30, 2007
- Since July 1, 2007

- (e) When you enrolled in NOVEC's program, how much time transpired between the day you enrolled and the day your switches were installed?
- _____ Can't recall
- _____ One business day
- _____ Two business days
- _____ Three business days
- _____ Four to seven business days
- _____ More than seven business days
- (f) For those who have had a/c switches installed: Do you feel that the program's curtailment period (7½ minutes out of 30 minutes during peak demand times only) is:
- _____ Not long enough
- _____ Just about right
- _____ Too long
- (g) For those who have had a/c switches installed: On days when the temperature outside has been greater than 90°, have you experienced any discomfort inside your home since you enrolled in the program that you did not experience before you enrolled in the program?
- _____ No _____ Yes, occasionally _____ Yes, frequently _____ Not sure
- (h) Rank each of the following aspects of NOVEC's program in terms of its importance to you personally, with "1" being "not important," "2" being "somewhat important," and "3" being "very important."
- _____ Free
- _____ Easy to understand
- _____ Don't have to be home to have switches installed
- _____ Don't have to be home for switches to be activated
- _____ Allows me to assist the electric grid during peak demand times
- _____ Will provide me with a free diagnostic workup in the event my hot water heater or a/c unit needs repair

(5) What other demand-side management programs, if any, would you like to see NOVEC offer?

The next three questions concern other areas of energy stewardship:

(6) Have you replaced any incandescent light bulbs with compact fluorescents (CFLs)? Yes No

If you answered "Yes," approximately how many bulbs have you replaced?

(7) Have you participated in any other energy conservation measures or energy efficiency efforts within the last six months? Yes No

If you answered "Yes," please elaborate:

(8) Have you obtained an energy audit? Yes No

If you answered "Yes," who conducted your energy audit?

Thank you for completing this survey. Please return your completed survey to:

Barbara Kessinger
15033 Walking Stick Way
Haymarket, VA 20169
bgkessinger@comcast.net