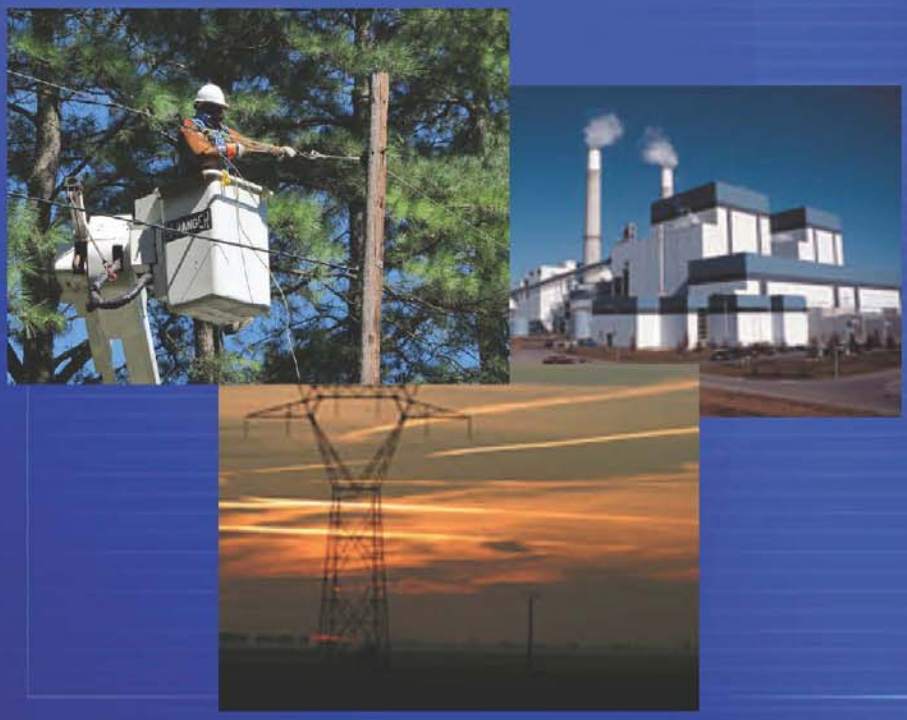
DELAWARE ELECTRIC CO-OP

"We Keep the Lights On"

Delaware Electric Cooperative Energy Plan 2012



Executive Summary

As a not-for-profit member-owned cooperative Delaware Electric has provided reliable service at competitive rates for its member-owners in Kent and Sussex counties since 1936. The success of that simple but effective business model has not been realized by chance or luck, but rather with the hard work of dedicated employees over the years, and a Plan. The Cooperative manages the energy supply side of the business on two fronts, first our ownership in a Generation & Transmission Cooperative jointly owned and managed by ten other member cooperatives in Maryland and Virginia provides DEC the leverage necessary to gain a financial advantage in the market place. Secondly, once DEC "takes possession" of that electricity at specific delivery points we, and our member-owners, manage and utilize that energy in a cost conscious way.

Certainly the Cooperative business model goes a long way in providing the foundation for providing reliable cost effective service, but more importantly it is the development and execution of plans and processes that effectuate the cooperative business model. This Energy Plan provides a general overview of the Cooperatives goals and objectives in providing low cost power. The real work, the real driving force, comes in the specific plans of action not included in this document but are an integral part of the initiatives some of which may be considered confidential and proprietary. The Plan incorporates three major components: 1) Generation, Transmission and Power Supply, 2) Distribution Delivery System, and 3) Member Conservation and Energy Education.

For many of the same reasons an investment advisor would recommend a diverse retirement portfolio DEC minimizes price and volatility risk by having a diverse mix of owned generation including base load and peaking units combined with short term and long term energy contracts. In other words we don't "have all of our eggs in one basket". The goal is long term price stability. Short term risks may mean DEC may not be the lowest cost provider but over the long term we believe that diverse ownership assets and market instruments and sound energy policies provide the best opportunity to providing low cost power.

This Plan is a continuous work in progress. It evolves and changes constantly as local, regional and world events impact the foundation of our business. Political and economic forces can significantly impact the course of our plan though our end focus remains the same – to provide long term cost effective power to our member-owners. The Plan, and the execution of the Plan, has proven successful by a single measurement; not a single member-owner has left the Cooperative for a third party supplier since standard offer service was unregulated and opened to competition some eight years ago.

If you would like more information or have questions regarding this plan please contact us at:

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"We Keep the Lights On"

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k. Continue to foster and develop transmission delivery point interconnections and operating coordination among peninsula electric utilities through the Delmarva Peninsula Planning Association (DPPA).

II. Distribution Delivery System Plan

a. Develop, implement and utilize system voltage control options to reduce peak energy requirements.

b. Extend cycle times for demand side management appliances to reduce peak energy requirements.

c. Reduce distribution system losses.

d. Continuously review and redesign and re-program capacitor controls and installations to maximize power factor and system delivery efficiencies.

e. Continue to deploy residential load management switches to manage peak energy usage.

f. Continue to deploy interruptible load management switches for agricultural and commercial members to manage peak energy usage.

g. Continue to review and refine design practices to capture infra-structure and equipment efficiencies.
   i. Transformer utilization
   ii. Transformer and streetlight locations

h. Continue the deployment of our AMR/AMI to minimize field trips saving energy and delivery costs and reducing losses.

i. Continue to utilize our information technology systems to promote operational efficiencies across the enterprise.

j. Investigate and develop opportunities to utilize time of use rates to shift energy and demand usage patterns.

k. Provide real time energy usage to homes using smart meter technology**.**

III. Member Conservation and Energy Education Plan

a. Promote the “Beat the Peak” program to encourage members to join in reducing energy during peak energy periods to mitigate demand expense and improve load factor.

b. Support member-owners in the installation of renewable energy and conservation projects through grants from our Renewable Resource Plan.

c. Continue investment and support of our compact fluorescent light bulb program.

d. Promote and encourage the smart use of energy to our membership and the media with an emphasis upon energy conservation and energy efficiency education programs to include lighting and Energy Star appliances.

e. Encourage additional membership participation in residential load management programs.

f. Continue the development of efficiency and cost savings education of our commercial members including energy management options.

g. Continue the expansion of our out-reach education programs to all members of the Cooperative through speakers bureau opportunities.

h. Investigate energy management with developers including the utilization of smart house concepts and Energy Star homes.

i. Commercial Account Representative reviews with major accounts regarding their energy management programs and development of commercial Beat The Peak programs.

j. Develop energy and environmental management programs to maximize energy efficiencies at the DEC corporate facilities.

k. Develop and maximize opportunities at the State and Federal level to utilize stimulus dollars to support efficiency, conservation and renewable programs.

l. Develop and implement plans to meet state mandated reductions in energy consumption and peak demand while maintaining appropriate rate recovery.

Generation, Transmission And Power Supply Plan

I. a. Utilize a managed portfolio philosophy for supplying wholesale energy products.

The energy marketplace has been very volatile and that trend appears to be continuing into the future. The price of energy in the market is largely driven by the price of fuels such as natural gas and oil, which have recently continued to move upward. A business strategy which employs a single source contract, supply or strategy limits its options and flexibility with respect to cost, reliability of supply, and / or market changes.

A widely accepted concept regarding a de-regulated electric marketplace was one of purchasing all energy and capacity from the market because supply and demand would create the most cost effective market. Delaware Electric Cooperative (DEC) had a long term all-requirements contract in place which included a diverse managed portfolio consisting of owned generation assets. Through our relationship with Old Dominion Electric Cooperative (ODEC), DEC has been able to maintain a supply cost advantage as compared to the wholesale market for the following reasons:

1) The Cooperative Business model operates as a non-profit entity
2) DEC's long term contract combines the buying power of 11 Cooperatives.
3) The managed energy portfolio includes:
    a. Owned generation facilities
        i. Base load
            1. Nuclear
            2. Coal
        ii. Peaking
            1. Gas fired
            2. Diesel
    b. Long term contracts
        i. Base load
        ii. Mid-merit (heat rate)
    c. Day ahead purchases
    d. Real time purchases
    e. Fuel purchases/Fuel Hedges
    f. Renewable energy products
4) Owned and market capacity purchases
5) Demand-side management options
6) Purchase decisions are made to balance long term price stability and limit short term market volatility. The DEC load is not exposed to the market through a single point in time RFP process
7) Hedging programs and philosophies
8) Low cost goals verses maximized profitability
9) Transmission delivery and congestion mitigation programs

The managed portfolio model for purchasing energy and capacity has optimized the ability to minimize the cost of supply by providing options for supply type, timing, fuel, magnitude of purchases and multiple suppliers.

I. b. Supply a significant portion of energy from ODEC owned assets within our supply portfolio.

The best hedge against escalating and volatile energy prices is asset ownership and managing the purchase of energy from your owned units verses the cost of power purchased from the market. With the cooperative structure in place, the ODEC generating units are producing energy and capacity for their members at an at cost basis. The cost of energy purchased from these units consists of the cost of fuel, operations, depreciation and interest, plus a 1.2 TIER (interest coverage requirements and patronage capital contribution). This is a function of the Cooperative Business Model that is employed at ODEC for their members which includes DEC.

When the market prices are less costly than the price of generation purchased from our owned generating units we shift our purchases to the market. This occurs more often during the non-peak times when the cost of power is lower and allows ODEC to manage the average cost downward. In addition, ODEC owns approximately 1350 MW of peaking capacity which provides a cap on the price we must pay for the majority of the energy we need to purchase during peak periods.

As we manage our owned generation portfolio with other market instruments we have been able to provide price flexibility to benefit our members. We need to practice and continually review and adjust hedging policies to maximize our cost and reliability performance in the market. That includes target ranges for energy and / or capacity supplied from owned assets or long term contracts minimizing our exposure in the market and maximizing our options to make a controlled decision on purchases or run options. A ten year plan outlining our managed portfolio options and assets is outlined in the Delaware Electric Cooperative Annual Planning Report on file at the Cooperative.

Reference: DEC Annual Supply Planning Report

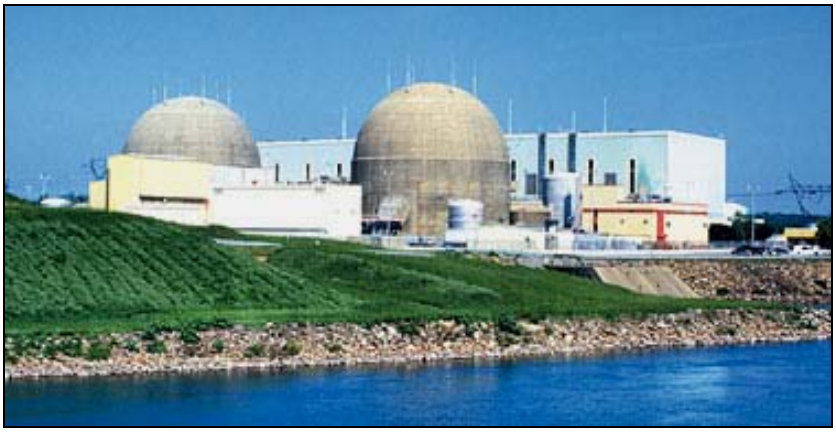
I. c. Maintain a diverse mix of generation products to assure price and supply flexibility and mitigate risk associated with single source generation.

Single sourcing of any product exposes the purchaser/owner to the risk of price in-flexibility. Our strategy includes one of a combination of diverse resources and purchasing instruments which allows us to manage our average cost lower. Some examples of our owned generation and resource mix are outlined as follows:

Plant	**Fuel**	**Capacity**
North Anna	Nuclear	214 MW
Clover	Coal	441 MW
Rock Springs	Gas	336 MW
Marsh Run	Gas/oil	504 MW
Louisa	Gas/oil	504 MW
Total		**1,999 MW**

ODEC also incorporates long and short term contracts utilizing various designs including base load, off peak wraps, heat rate, slice of system, load following and call options to name a few. In addition, we purchase energy in the day ahead and in the real-time markets. Finally, we purchase fuels, natural gas, oil and coal to effectively reduce the cost of energy generated by our power plants.

North Anna



Old Dominion Electric Cooperative owns an 11.6 percent interest in Virginia Power's North Anna Nuclear Power Station in central Virginia's Louisa County. The station's two generating units have a combined capacity of about 1,800 megawatts. The first unit began commercial operation in June 1978, the second in December 1980. The station was named for the North Anna River, dammed to form the 13,000-acre lake that supplies cooling water to the station.

North Anna plays a vital role in supplying the needs of Old Dominion Electric Cooperatives member's. The station cost approximately $1.3 billion to build and Unit 1 became operational in 1978 and Unit 2 in 1980.

The North Anna station continues to be among the lowest-cost nuclear generating stations in the nation. The nuclear program at North Anna is rated as one of the safest and most productive in the nation by the Nuclear Regulatory Commission and the Institute of Nuclear Power Operations.

Clover Power Station

The Clover Power Station is the flagship of Old Dominion Electric Cooperative. Old Dominion owns half of this 880-megawatt, advanced-technology coal-fired electric generating station in south-central Virginia's Halifax County. The station was designed and constructed by Old Dominion beginning in the late 1980s, and culminating with the commercial start-up dates for Unit One in October 1995 and Unit Two in March 1996. Virginia Power also owns half of the station, and is responsible for operating the station.

Of the station's $1.2 billion cost nearly one third – around $400 million – went to advanced pollution controls, including scrubbers for removing 94 percent of sulfur dioxide and baghouses with a 99.9 percent removal efficiency for fly ash. Clover was the first base-load plant after the Clean Air Act Amendments of 1990 to be begin operations. Today it remains one of the cleanest coal-fired power plants in the United States.

When its 50 percent ownership in the coal-fired Clover Power Station in south-central Virginia is combined with its 11.6 percent ownership stake in North Anna Nuclear Power Station, Old Dominion owns about 54 percent of the generating needs of its 11 member distribution systems. The other 46 percent is purchased from other utilities

through contractual arrangements, in which Old Dominion shops the energy marketplace for the best deal for its member cooperatives.

April, 1992 marked the groundbreaking for the Clover Power Station, a joint effort of Old Dominion Electric Cooperative and Virginia Power. When the first unit of the two-unit, 880-megawatt, coal-fired power station went on-line in 1995, Clover became the jewel of Virginia's utility industry. The second unit began commercial operation in 1996. The joint ownership of Clover is but one of the station's many unique characteristics. In a 50/50 partnership, Old Dominion was responsible for building the station and Virginia Power for operating it once the station was complete. The utilities share the generated power.

Clover power is transmitted throughout Virginia to meet the ever-increasing electricity needs of the Commonwealth's growing population. Old Dominion provides its share of Clover power to its 11 member cooperatives in Virginia, Maryland & Delaware. Combined, these distribution co-ops serve more than 500,000 rural consumers. Old Dominion's service area includes about one-third of Virginia's land mass and 10 percent of its population. Because Clover is a "baseload" station, it runs 24-hours a day, seven days a week to ensure a reliable supply of electricity to homes, farms and businesses.

Besides providing the electricity so vital to Virginia's future economic and population growth, the Clover Power Station is providing a critical boost to the economies of the areas surrounding the station. And, by committing $400 million to pollution-control and other environmental technologies, Clover is enhancing the environment by replacing power from older stations.

Once brought on-site, coal is burned to heat water to create steam. At Clover, this means burning 314 tons of coal each hour to heat the water and create steam in the two boilers that will reach 1,000 F. At the Clover Station, steam is collected in a 220-ton steam drum located at the top of the boiler at a pressure of 2,400 pounds per square inch. The steam is injected into the turbine causing the rotors to turn at 3,600 revolutions per minute, creating mechanical energy. This energy is transformed into electricity by a huge electromagnetic generator. Once created, the electricity voltage is increased by transformers before it is sent out via the transmission system.

At its peak, the Clover Power Station generates about 880 megawatts -- 880,000 kilowatts -- of electricity. This could provide over 200,000 households with, reliable electrical energy.

Clover Power Station ranked second lowest among U.S. coal-fired power plants in sulfur-dioxide emissions, according to a report published by ***Power*** magazine. Clover was also ranked in the top 50 U.S. coal-fired plants in efficiency and lowest nitrogen-oxide emissions.

Rock Springs

The decision to proceed with power plant construction at Rock Springs came after nearly four years of study and review regarding possible site selections. Old Dominion focused on several different sites in Virginia and Maryland, before deciding to explore constructing this peaking plant in Cecil County, Md.

Construction on the plant began in October of 2001. The Rock Springs facility was completed in June 2003 and accepted by Old Dominion for commercial operation shortly thereafter.

The facility is located on approximately 114 acres, 98 in Rock Springs, Md., and 16 in Lancaster County, Pa., All of the development is on approximately 30 acres of the Cecil County portion of the property.

This is a 680-megawatt power station consisting of four combustion turbines (CTs), equipped with the best available emission-control technology. Old Dominion and North American Energy Alliance, Inc. own two CTs each. The remainder of the facility is jointly owned by the two companies.

The station is designed to provide cost-effective, environmentally friendly and reliable electric capacity for the three Old Dominion member distribution cooperatives on the Delmarva peninsula during the hottest and coldest days of the year, when electricity usage is at its peak.

These three distribution cooperatives, Choptank Electric Cooperative (Denton, Md.), Delaware Electric Cooperative (Greenwood, Del.), and A&N Electric Cooperative (Parksley, Va.) serve approximately 170,000 homes, businesses and farms in one of the fastest-growing regions on the East Coast.

Marsh Run

In April 1999, Old Dominion Electric Cooperative announced that it was exploring power-plant construction options at Marsh Run, located in Fauquier County, near the town of Remington. This decision came after nearly four years of study and review regarding possible site selections. The Marsh Run facility helps to meet future peak-electric generation requirements for Old Dominion's distribution cooperatives. Peak-electric generation usually is needed by utilities when electric demands are at their highest, likely on the hottest and coldest days of the year.

The Marsh Run site is located about 2 miles east of Remington, Va., in Fauquier County. Dominion Virginia Power's Remington Project is approximately 1 mile from the cooperative project. The Marsh Run site was chosen because of its close proximity to natural gas and electrical transmission lines.

Work on the Marsh Run project began June of 2003 and has been operational since the summer of 2004. The facility consists of three simple-cycle combustion turbines capable of producing 510 megawatts of electricity. A simple-cycle combustion turbine consists of a compressor, turbine and generator. Ambient air is compressed to a higher pressure in the compressor, mixed with fuel and ignited in the combustors, the resulting expanded gas drives the turbine. The turbine turns the generator and electricity is produced.

The generation units burn natural gas as the primary fuel, with low-sulfur fuel oil as a backup source. Gas-fired combustion turbines are ideal because they are able to produce electricity quickly to meet peak-power requirements with low emissions when the demand for electricity is the greatest, like on the hottest and coldest days of the year. Because this facility is a peak-generation power plant, it will run only the equivalent of 57 days a year. The plant site consists of three combustion turbines (each with its own stack, generator, and step-up transformer), water storage tank, fuel oil storage tanks, electrical substation, maintenance/office building and other ancillary facilities. The plant is unique in its use of the brown water discharged by the Fauquier County Water and Sanitation Authority. Rather than using ground water, the plant will evaporate the

wastewater to increase the output of the turbine and therefore benefit the water quality of the Rappahannock River.

The peaking power generated from the Marsh Run facility will be dedicated to the needs of Old Dominion's eight distribution cooperatives on the Virginia mainland.

Louisa County

The decision to proceed with power-plant construction in Louisa County came after nearly four years of study and review regarding possible site selections. Old Dominion focused on different sites in Virginia and Maryland before deciding to explore building a peaking plant in Louisa County.

Construction began on the Louisa County facility in June of 2002, and it began commercial operation in June of 2003. This plant consists of five simple-cycle combustion turbines with a total potential output of 510 megawatts. A simple-cycle combustion turbine consists of a compressor, turbine and generator. Ambient air is compressed to a higher pressure, mixed with fuel and ignited in the combustors, the resulting expanded gas drives the turbine. The turbine turns the generator, which produces electricity.

The plant site includes the five combustion turbines (each with its own stack, generator, and step-up transformer), a water storage tank, fuel oil storage tanks, an electrical substation, a maintenance/office building and other ancillary facilities.

These combustion turbine units burn natural gas as the primary fuel, with low-sulfur fuel oil as a backup source. Gas-fired combustion turbines are ideal because they are able to produce power quickly with low emissions when the demand for electricity is the greatest, like on the hottest and coldest days of the year. Because this facility is be a peak-generation power plant, it only operates approximately 75 days a year, typically on the hottest and coldest days of the year.

As a generation cooperative serving eleven member distribution cooperatives in Virginia, Maryland and Delaware, Old Dominion's peak demand on the Virginia

Mainland is expected to more than double by 2017, according to integrated resource-planning studies. Because the generation component of the electric utility market is deregulating, Old Dominion strongly believes it must secure reasonable and cost-efficient energy sources through contracts, alliances or generating stations to meet its future power supply needs. With more than 500,000 metered cooperative customers on the Virginia mainland, Old Dominion must focus on meeting future peak-generation capacity needs today. Otherwise, individual electric cooperative customers could face a future of higher electric bills and decreased power reliability.

The peaking power generated from the Louisa County facility is added to the Old Dominion power grid to serve its nine member distribution cooperatives on the Virginia mainland.

I. d. Identify and investigate ownership / contractual relationships with new and existing generation facilities capable of meeting our energy and capacity needs within our managed portfolio.

Generating sites, generation and long term contracts are limited commodities. Anytime one of these resources is made available ODEC will engage in a valuation of the asset and take appropriate steps to place a bid if it fits into our generation plans. ODEC typically does not own and develop facilities on its own but works very well as a partner. Developing strategic alliances with potential business partners will be necessary to make the investment in and management of generation assets economically viable.
Several of the ODEC generating assets are jointly owned.

Sites for future generation within our service territory have additional value in increasing reliability of service and reduction of additional costs due to the limited transmission infrastructure to deliver power from the market. New generating stations on the peninsula may never be developed due to the environmental and physical barriers. The re-powering of existing sites to accommodate cleaner and larger facilities appears to be a logical option.

In early 2008 ODEC confirmed it is reviewing the feasibility of constructing a base load power generation facility on either a 1,600-acre site in Surry County, Va. or a 1,200-acre site in Sussex County, Va. ODEC, which has previously built generation facilities in Halifax, Louisa and Fauquier counties in Virginia, has identified the need for a base load facility to meet the around-the-clock electricity needs of ODEC's nearly 500,000 member-owners in Virginia. In addition to the 10 Virginia electric cooperatives ODEC provides with wholesale power, it also supplies power to an electric cooperative in Delaware and another on the Eastern Shore of Maryland. ODEC expects the electricity needs among its member-owners to double in the next 10 to 15 years. Wholesale contracts help ODEC meet 55 percent of its members-owners' energy demands.

"It can take eight to 10 years to bring a new base load generation facility on-line. Consequently, we have an obligation to take steps now to plan for long-term electricity needs," said Hudgins. "We are in the very early stages of an 18-month environmental study to determine if these sites are suitable to support a generation facility and have not identified the technology or determined the optimum size of such a generation facility." After the preliminary environmental studies are completed and a site is chosen, ODEC will work closely with local officials, businesses and residents throughout various phases of the facility's development. ODEC also plans to hold open house meetings to explain the studies' findings and address any questions that local residents might have about the potential project. "Our organization has a proven track record of building power generation capacity that balances the need for additional electricity for our growing Virginia economy with being a responsible partner in the communities where we operate," stated Hudgins. "ODEC is committed to working with our member-owners on continued efforts toward energy efficiency and peak load reduction and is focused on developing future generation that will provide reliable and economical electricity in an environmentally responsible and safe manner. This includes our continued examination

of renewable energy and emerging technologies to address energy and environmental issues." Both sites were chosen for final assessment after ODEC conducted an extensive siting study of potential locations in the Mid-Atlantic region. The study found that these two sites meet important criteria such as access to transmission lines and rail transportation, and provide a large enough footprint to accommodate a plant without encroaching upon environmentally sensitive areas.

DEC continues to investigate new generation ownership and/or power purchase options as a result of recent modifications to the wholesale power contract that permits up to 5% of capacity and energy may purchased/generated directly by the Cooperative. DEC owned assets could take the form of renewable projects, small base load generation or peaking units.

Additionally the Cooperative continues to evaluate the potential for growing the Cooperative by expanding its distribution service territories outside current certificated areas. The addition of industrial load to our customer base should significantly improve our load factor and reduce our overall cost of power.

I. e. Develop and update long range generation and transmission plans capable of supplying the peninsula to assure a safe, reliable and cost competitive supply for a minimum 20 year period.

Old Dominion Electric Cooperative has an extensive long term power supply planning process titled Future Resources for Energy and Demand (FRED). The FRED process provides an integrated power supply planning model which evaluates load forecasts, generation additions and retirements as well as contract and purchase agreements. This plan is reviewed annually and adjusted when a change in the resource requirements occur.

This process provided the foundation for the Old Dominion Board of Directors to make decisions regarding the best long-term approach of meeting the requirements of tis members. The 2007 FRED process provided the information necessary to assist the Board in approving ODEC's participation in the North Anna nuclear station expansion as proposed by Virginia Power.

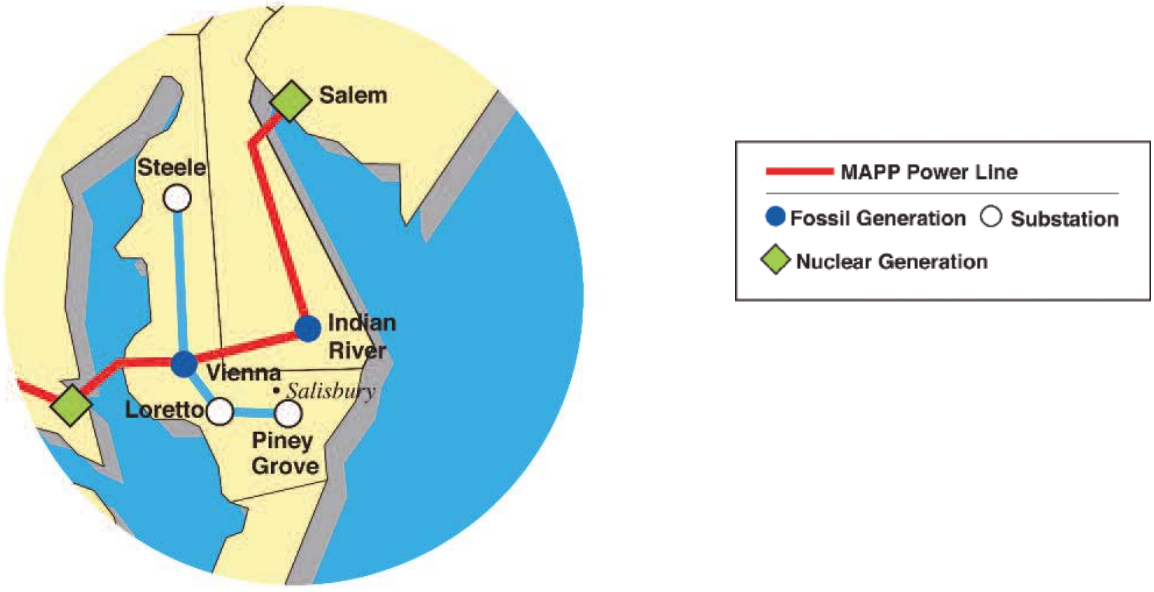
In order to accurately and efficiently plan for new generation, transmission and distribution requirements DEC, as well as the 10 other cooperative members of ODEC, annually engage in an extensive Power Requirements Study (PRS). The study, unique to each individual cooperative provides a comprehensive 15 year projection for consumers, seasonal peak loads, and energy sales. The annual forecast provides the foundation for DEC's financial forecast and revenue requirements.

Reference: Future Resources for Energy and Demand (FRED)
DEC Power Requirements Study

I. f. Work with and provide technical, political and public relations support for the design and installation of new bulk transmission paths (MAPP and others) into our service area.

DEC and ODEC have been supporters of the MAPP 500KV Transmission project designed by the PHI companies to provide a new power pathway onto the peninsula. The project utilizes existing rights of ways through most of Delaware and where ever possible through the remaining sections of the transmission line. The path provides for a greater transfer of power including renewable energy sources from off the peninsula onto the peninsula. The 500-230 kV step down transformers at Vienna and Indian River and the affiliated 230kV lines are also critical to utilizing this additional transfer capability from off the peninsula to on the peninsula. DEC and ODEC will continue to support the need for these affiliated projects since they will provide economic and reliability benefits to our member-owners.

More specifically, the path allows for more direct access to nuclear assets at North Anna, Calvert Cliffs, Hope Creek and Salem. The project will not only allow for the more efficient transfer of power onto the peninsula but it will improve reliability for all customers on the peninsula. While PJM has move the need for the MAPP line from 2015 to the 2019-2021 timeframe the project is proceeding with those development efforts "reasonably necessary to allow the MAPP project to be quickly restarted". DEC continues to believe the project is vital for reliability and economic reasons.



Based on preliminary studies on the impact of MAPP to ODEC and its members in energy costs savings could exceed $13 million on an annual basis. This equates to energy savings of just over 6% for ODEC and DEC.

DEC's support of the MAPP project will extend to our legislature and regulatory authorities as necessary to see the transmission project succeed and the Cooperatives members and the customers on the Delmarva Peninsula acquire additional reliability and price stabilization.

DEC continues to offer support and participate in public and community meetings held within our service territory and have the potential to impact our membership.

Reference: Communications to PJM in support of MAPP

I. g. Continue the development of congestion mitigation plans to assure efficient operation of the transmission system on the peninsula.

ODEC and DEC work together to analyze, design, and implement congestion mitigation plans throughout all of the Cooperative Service Territory to assure reliable, cost efficient transfer of power to the end user.

The cooperatives were very successful in a 2001 ruling at the Delaware Public Service Commission which set standards for levels of congested hours of operation on the Delmarva Transmission system. In addition, the settlement provided for the analysis and treatment to reduce congested operations through economic upgrades including relay, equipment ratings and operational changes. ODEC believes that this settlement has not only reduced the cost of power on the peninsula, but has also improved reliability.

Old Dominion's future resource plans are continually evaluated. A major factor included in such evaluations is the congestion risk. Old Dominion has paid congestion costs amounting to approximately $83 million from 2000 through 2007 (net of FTR values). DEC's savings in congestion costs amount to almost $7 million over the same period.

Congestion within the Delmarva Transmission zone improved with the reduction in the number of hours of congestion as outlined below:

Year	Total Hours Congestion Delmarva Peninsula
2002	1,041
2003	692
2004	716
2005	652
2006	405
2007	414
2008	275
2009	129
2010	390
2011	98

Old Dominion Electric Cooperative actively monitors congestion points and facilities on the Delmarva Peninsula and performs analytical studies to identify potential solutions that might reduce or eliminate congestion. The economic transmission program at PJM is the mechanism for bringing economic transmission facilities from the study arena to being in service. This program is still in its infancy with the cost allocation issue the biggest remaining hurdle to its full implementation.

I. h. Monitor and develop analytics identifying proper hedging tactics for wholesale power products within our supply area.

DEC through our association with ODEC monitor pricing for numerous power supply instruments including fuels, long term block purchases, wraps, day ahead, and real-time or spot market purchases. We have contracted with ACES Power Marketing to support our purchase/hedging decisions helping the Cooperatives provide a cost efficient portfolio of power purchases.

ODEC staff continually monitors the day ahead and real time markets developing trends as to when and how to cost effectively purchase power in those markets and the economic dispatch of our generating resources. ODEC has established a detailed hedging model and risk evaluation to facilitate purchases at the more cost efficient times through the most cost effective instruments. ODEC continuously marks our performance to market and makes adjustments to our philosophies and practices according to the goals and mission of the Cooperatives.

During the volatile energy markets of the late 1990s, several generation and transmission cooperatives, including ODEC, envisioned the creation of a new energy marketing company. The purpose of this new energy marketing company would be to provide wholesale energy risk management services. The Alliance for Cooperative Energy Services Power Marketing, or ACES Power Marketing (APM), is the direct result of the dedicated efforts of these forward thinking energy cooperatives.

Since its formation in February 1999, APM has become a nationally recognized wholesale energy trading and risk management firm that has maintained its customer oriented focus of providing quality service. Today, APM is one of the largest physical electricity traders in the nation.

Although APM was originally created by and for cooperatives, its energy risk management services are applicable to and will provide value for a broad range of customers including Independent Power Producers, Investor-Owned Utilities, Merchant Energy Firms, Municipal Power Utilities, and other energy industry participants.

I. i. Update and extend our wholesale power contract to assure long term safe, reliable and cost competitive energy supply for our members.

DEC presently maintains an all requirements long term contract with ODEC for all of power supply needs. The contract provides power to DEC and other member cooperatives at its cost of providing power. This contract provides ODEC with the financial support to build, and operate power generation and transmission facilities as well as purchase power on the open market. Long term all requirements contracts are viewed very favorably by lending institutions and can have an enormous impact on cost of debt and a positive impact on retail rates.

We recently concluded negotiating a re-stated and extended contract to provide for the construction and purchase of energy supply through the year 2054. This will enable ODEC to obtain cost effective financing to build future generation plants. As ODEC moves forward in partnership with Dominion Virginia Power in the expansion of the North Anna Nuclear facility the extension of the all-requirements contract should result in favorable credit arrangements.

ODEC continually negotiates with power suppliers, developers and generation owners to procure future power supply options and facilities which we feel will meet our supply needs.

By virtue of a restated wholesale power agreement DEC now has the ability to procure up to 5% of capacity and energy needs through owned generation and/or bilateral purchase agreements with wholesale suppliers creating additional independent opportunities for DEC.

Reference: Summary of Changes to 2007 Wholesale Power Contract
Crossroads II Accord
Second Amended and Restated Wholesale Power Contract
Policy on Addition of Non-Native Load

I. j. Provide renewable power supply options to members maintaining our power supply philosophies.

In 2006 DEC developed a process with our Legislators to provide our members the option to purchase renewable energy credits on a monthly basis. DEC has contracted with renewable energy suppliers to provide these renewable energy credits at a below market price. As of December 2011 members of the Cooperative have purchased over 6,556,200 kWh of renewable energy credits.

ODEC and DEC's long term strategy is in fostering the creation and development of a national cooperative whose objective is to enable the Cooperative program to broadly pool the ownership and benefits of renewable resources in order to meet renewable portfolio legal requirements, and goals and to create an entity that provides on-going opportunities for accessible and competitively priced renewable resources for all Cooperatives in a cost effective manner. This Cooperative will bundle the buying power of all of the cooperatives who elect to participate and they will develop these resources where they make operational and financial business sense. We will be looking at wind, bio-mass, solar, and hydro to name a few and will have the funding and sales channels to make this a viable business opportunity for our members.

Alternative options may involve direct ownership or joint ownership of small scale renewable generation projects located in Delaware or on the peninsula.

In addition to offering renewable energy DEC participates in the Department of Energy's Voluntary Reporting of Greenhouse Gases Program by completing Form EIA-1065 annually.

In 2008, ODEC executed an agreement to buy 50% of the output of AES Corporation's Armenia Mountain Wind Energy Project in north-central Pennsylvania. The projected reached commercial production in December 2009, with the completion of its 67 General Electric 1.5 megawatt SLE wind turbines which can produce 100.5 megawatts.

In 2009, ODEC executed its second wind power agreement to buy the entire output from Criterion Wind Project located in Garrett County, Maryland. This project was developed by Clipper Windpower, Inc. and the project was subsequently sold to Constellation Energy. The 70 MW project is built using 28 Clipper 2.5 MW Liberty turbines and began commercial operations in 2010.

ODEC's latest wind contract is the Stony Creek Wind Farm which is currently in operation in Somerset County, Pennsylvania. ODEC has a long-term contract to purchase 32.5 MW of capacity, energy and renewable energy credits from this facility.

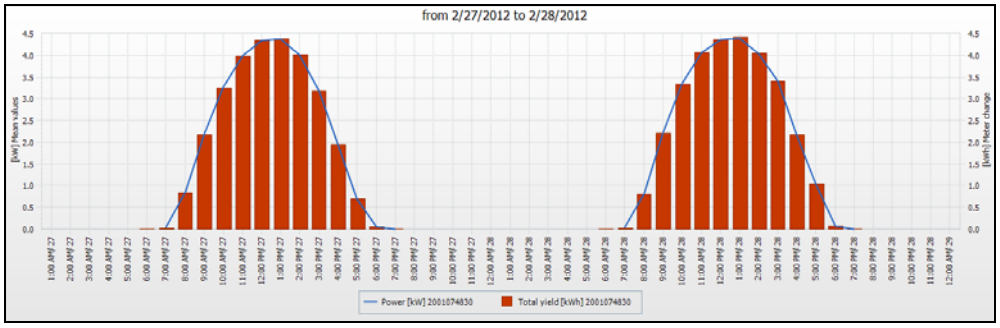
In 2008 ODEC continued expanding its portfolio of renewable energy resources through the purchase of power from two new generation projects in Maryland and Virginia.

Located in Newark, Md., about 15 miles southwest of Ocean City, the Worcester County gas-to- energy project will utilize the methane produced at the 200-acre Worcester County Central Landfill Facility to produce 2 megawatts (MW) of electricity. The landfill is operated by the Worcester County Department of Public Works while the gas-to-energy project is being developed by Curtis Engine and Equipment Co. of Baltimore and owned by Worcester County Renewable Energy LLC. Methane, which is naturally produced as landfill waste decomposes, is collected via a series of collection pipes and burned in a reciprocating engine to generate electricity. In addition to using a renewable fuel source, the project's capture of methane significantly reduces the net emissions of greenhouse gases from the landfill.

ODEC will also obtain up to 1 MW of energy from a newly reconstructed facility at the base of the 150-foot Falling Springs waterfall near Route 220 in Alleghany County, Va., approximately 12 miles south of the Homestead Resort. The Falling Springs Hydroelectric Project consists of twin pipes which transport the water a mile downhill from the base of the falls where turbines have been installed to produce electricity. Significant work was performed by Hydro FS, LLC to refurbish this facility, which dates back to the early 1900s.

Renewable Project	**Resource Type**	**MW**	**Location**
Falling Spring Hydro	Hydro	1	Virginia
GPC Green Energy	Landfill Gas	12	Virginia
Richmond Energy (Fortistar)	Landfill Gas	5.9	Virginia
Southern Landfill (Ameresco)	Landfill Gas	1	Delaware
Worcester County	Landfill Gas	2	Maryland
Subtotal		**20.9**	
Armenia Mountain (AES)	Wind	50	Pennsylvania
Criterion Wind Farm (Constellation)	Wind	70	Maryland
Mehoopany Wind Farm (BP)	Wind	111	Pennsylvania
Stony Creek Wind Farm (E. ON Climate)	Wind	32.5	Pennsylvania
Subtotal		**263.5**	
Total Renewable Resources		**285.4**	

As part of DEC's expansion into renewable the Cooperative installed a 5.46kW photovoltaic system in 2010 to serve as a demonstration and educational tool. Real time monitoring of output is displayed on the DEC web site.



<u>Reference:</u> National Renewables Cooperative Business Plan
DEC Renewable Energy Rider (RER)
DOE/EIA Recognition
ODEC Press Release

2012 will mark several DEC initiatives to comply with a State mandated Renewable Portfolio Standard (RPS). By the end of the year DEC is required to file a compliance plan that will be comparable to the full RPS standards. The compliance plan will demonstrate DEC's commitment to renewable energy including photovoltaics, wind, landfill gas to energy projects. Highlighting this plan will be DEC's investment in a 4 MW photovoltaic system owned and operated by DEC. The system will be interconnected to the DEC electric distribution system and will provide DEC members with energy, capacity and solar renewable energy certificates (SREC's). The estimated 6,489,600 kWh energy generated annually from the system will offset energy purchased from ODEC but without the additional expenses for transmission, ancillary costs and system losses. DEC's developer will be SunEdison, will utilize Motech panels manufactured in Newark, Delaware and be constructed using Delaware labor. The energy produced by annually the system is enough to power approximately 500 homes and will offset 12,640,747 lbs of CO2 or the equivalent of taking 1,239 cars off the road.

SunEdison

MOTECH

DEC will continue to provide grants to member-owners who desire to invest in their own renewable generation system. By the end of 2011 over 300 DEC member-owners had installed their own photovoltaic system and 13 had installed a small scale wind turbine.

I. k. Continue to foster and develop transmission delivery point interconnection and operating coordination among peninsula electric utilities through the Delmarva Peninsula Planning Association (DPPA).

DEC and other local utilities have fostered the idea to develop joint planning groups to meet our transmission planning needs through the most efficient and cost effective processes. Working under a Charter the peninsula utilities meet on a regular basis to mutually discuss and develop transmission plans and work on distribution delivery-point facility upgrades and additions for our service areas. The group is called the Delmarva Peninsula Planning Association (DPPA), and consists of the Cooperatives, investor owned utility and municipal utilities on the peninsula.

Members meet to discuss transmission expansion plans, maintenance issues, interconnection of delivery point facilities, reliability, operations and congestion to formulate ways which we can work together to more efficiently operate the entire transmission system on the peninsula. Additionally members participate in the PJM Regional Transmission Expansion Plan (RTEP) process and the Transmission Expansion Advisory Committee (TEAC) to recommend and support transmission upgrades through PJM as these are the PJM committees that drive new transmission throughout PJM.

Reference: Delmarva Peninsula Planning Association Charter

II. Distribution Delivery System Plan

II. a. Develop, implement and utilize system voltage control options to reduce peak energy requirements.

DEC has implemented a system voltage reduction plan to help reduce peak load and energy usage during peak periods. Utilizing existing technology capabilities DEC operations programmed the reduction of system voltage at our substation transformers in a range of 2.5% to 5%. At the same time DEC is freezing existing line regulators in place to not allow them to adjust the voltage upward during voltage control periods. The effective savings from this program average approximately 8 MW monthly and an annual savings approaching $1,000,000.

The reduction of voltage up to 5% has shown no negligible impact on DEC's member-owners. The Cooperatives maintains a voltage bandwith of +/- 5% of 120 volts and this plan would be constructed such that the low end of the bandwidth would not be violated. Installing controls for the remote freezing of line regulators is continuing with more than 50% of the first regulators out from the substations completed at this time.

II. b. Extend cycle times for demand side management appliances (central air units & hot water heaters) to reduce peak energy requirements.

DEC presently cycles its load management central air conditioning units off on cycle times of 15 minutes every half hour during the load control period and water heaters 35 to 60 minutes every two hours during the load control period. The air conditioning cycle times were increased in 2008 from 7½ minute that we have employed since the beginning of the program in 1988.

This has reduced the peak capacity and energy requirements and saved an additional 50% in the program. DEC had believed that there will only be a minimum number of members who even notice the increased cycle times. Surprisingly, during the 2008 increased cycle times, DEC did not receive any complaint calls on the increased times. This program has saved our members an additional $500,000 annually in reduced capacity costs from our power supplier.

II. c. Reduce distribution system losses - Losses are the decrease in usable power or the energy lost through the delivery system of wires, transformers, meters, etc to member/owners.

- **Utilize energy savings designs for exit feeders -** By using DEC's engineering analysis software, Windmil, we plan to determine losses at ½ mile and 1 mile from each station exit. By replacing the current conductor with a larger one, on Windmil, the losses can be calculated and a determination on whether it is cost effective and what the payback to upgrade the conductor would be.

- **Utilize low loss transformers -** Since 1995, DEC has been performing loss evaluations for the purchase of distribution transformers. Loss evaluations determine the economic benefit of purchasing a more efficient transformer. Very efficient low loss transformers have a higher first-cost versus a standard "off the shelf" unit which has a lower first cost. Up until 2010, the industry standard "off the shelf" transformer has had much higher losses and is not as efficient. Even though a low loss transformer is more expensive to purchase, it delivers lower losses to the electrical system and provides much greater economic savings over the life of the transformer. The loss evaluation process on transformer bids aids in making the best purchase choice among competing transformer manufacturers.

  Recently, the U.S. Department of Energy (DOE) has recognized that energy conservation standards for most distribution transformers will result in significant conservation of energy. Because of this, the DOE has adopted standards for distribution transformer designs which mandate the use of higher efficiency transformers. As of 2010, the new standards for more efficient transformer design will be in effect that all manufacturers must follow.

  Because DEC's loss evaluation techniques are so stringent, this new government standard has not altered the methodology in which DEC bids and purchases transformers. It is important to note that DEC's loss evaluation techniques are still more stringent than even the current DOE standard. On our latest transformer 2-year blanket bid, we received transformer bids which when analyzed, will produce even more efficient transformers than the new DOE standard which is mandated to begin in 2010. DEC's loss evaluation criteria and techniques will keep us well ahead of the efficiency curve for the foreseeable future.

  In addition, if the current commodity pricing is maintained, our new transformer blanket bid would result in a projected savings of over $600,000 over the next two years, as compared with the previous transformer blanket pricing.

- **Continuously review and balance circuit and transformer loading -** DEC continuously monitors phase and circuit loadings to minimize losses and maximize reliability. Seasonally, and as loadings change, DEC rebalances phases, circuits and substations.

Engineering continuously refines transformer loading requirements and monitors loading of commercial accounts with respect to their transformer size thereby limiting losses associated with oversized transformers and assuring reliability is maintained with correctly sized transformers.

- **Continue the deployment of our electronic metering program -** Technological advances in the area of metering have evolved from the traditional electro-mechanical meter to an electronic solid state meter. With no moveable parts (disc, gears, etc.) these new electronic meters can save as much as two percent in losses. While DEC has utilized electronic meters for its largest commercial accounts for years we embarked on an ambitious project several years ago to replace all electromechanical meters with new electronic solid-state meters. The impact of limiting losses on the system can be significant. DEC's 30 year system average loss is 8.04 %. Due in part to the conversion to electronic meters, as well as other distribution system improvements, our most recent three year average is 6.10%. Depending on DEC's cost for power the annual savings can exceed $1,000,000 and eliminate the waste of 25,000,000 kWh's per year.

			kWh Saved		Savings	
	Losses/kWh	Losses/%	Annual	Cumulative	Annual	Cumulative
1996	42,831,983	5.97%	14,855,295	11,752,728	$780,912	$616,142
1997	56,204,373	7.76%	2,001,446	13,754,174	$103,753	$719,895
1998	64,043,423	8.36%	(2,497,726)	11,256,447	$(129,454)	$590,441
1999	54,200,304	6.68%	10,985,535	22,241,983	$544,124	$1,134,564
2000	66,555,247	7.76%	2,356,359	24,598,342	$124,878	$1,259,443
2001	47,531,982	5.39%	23,293,908	47,892,250	$1,305,656	$2,565,099
2002	68,872,858	7.16%	8,399,073	56,291,323	$447,617	$3,012,715
2003	73,377,354	7.16%	8,948,272	65,239,596	$491,075	$3,503,790
2004	79,477,089	7.32%	7,768,959	73,008,554	$436,306	$3,940,096
2005	66,385,503	5.64%	28,254,002	101,262,556	$1,722,352	$5,662,448
2006	59,351,538	5.20%	32,459,517	133,722,073	$2,271,596	$7,934,044
2007	87,699,676	7.01%	12,932,712	146,654,785	$968,459	$8,902,503
2008	82,342,232	6.65%	17,204,530	163,859,315	$1,391,193	$10,293,697
2009	86,567,788	6.99%	13,038,609	176,897,923	$1,072,645	$11,366,342
2010	108,460,611	7.90%	1,865,750	178,763,673	$140,143	$11,506,485
2011	44,447,280	3.42%	59,937,619	238,701,292	$4,591,959	$16,098,444

II. d. Continuously review, redesign and re-program capacitor controls and installations to maximize power factor and system delivery efficiencies.

DEC monitors its power factor and uses computer modeling tools to forecast the need for line capacitors to compensate for poor power factor on a delivery point basis. Capacitors improve delivery efficiency in several ways:

1. Reduction of Line Losses by lowering the reactive current flowing in the distribution system,

2. Reduction of KVA demand on substation transformers thereby allowing the transformers to serve a greater 'real' load,

3. Improvement of the voltage profile along a circuit which minimizes the number of line regulators that need to be installed and,

To date we have installed over 200 switched capacitor banks that operate locally based on the operational data from their controls. This data is monitored on a bi-annual basis with the control settings revised in order to adapt to the changing customer profile of our system. For 2009, DEC has purchased a computer program that allows control of a capacitor bank from SCADA data based on responses to the associated substation power factor. To date five banks are being switched utilizing this program with an additional fifteen more being controlled by mid year, 2009.

II. e. Continue to deploy residential load management switches to control peak energy usage.

For our residential members DEC offers a Load Management Rate that permits the Cooperative to install a switch on the member's water heater and/or central air conditioning unit at no cost to the member. DEC actively controls this switch turning the member's water heater and/or air conditioner off, for brief periods (35 to 60 minutes per hour for water heaters and 15 minutes per hour for air conditioners) during peak load periods. In return the member receives a $2 credit on their monthly bill for each appliance controlled.

Through 2011 DEC has installed 20,821 switches controlling 26,799 appliances (9,596 air conditioners & 17,203 water heaters) and continues to promote, market and install approximately 1,000 additional switches annually.

The total number of appliances under control represents approximately 16,820 kW of load that the Cooperative can reduce during peak demand or high price periods and represents approximately 4.6% of the DEC summer peak system load.

From a broader prospective DEC's demand side management programs allow the Cooperative to operate and manage the distribution system in such a way that maximizes reliability thereby extending the benefit of favorable rates to enhanced reliability through system operations. DEC utilizes the active load management system in response to peak demand periods, requests from the regional transmission operator PJM, to reduce demand during emergency conditions on the bulk transmission system on the Peninsula thereby helping to preserve the integrity of the system and minimize the need to resort to rolling blackouts during emergency conditions.

II. f. Continue to deploy interruptible load management switches for agricultural and commercial members to control peak energy usage.

The nature of DEC's service area and the demographics of our membership compel DEC to offer rates for our agriculture community that provide for members willing and able to alter their usage patterns during peak periods in exchange for a lower rate.

The cooperative offers one specific load management rate for irrigation systems and a second rate that is available to irrigators, poultry farmers, and other qualifying commercial accounts. Both rates offer economic incentives for restricting operations and energy consumption to off peak periods.

As an alternative to several traditional rate designs DEC offers the Irrigation – Demand Off Peak (IR-DOP) rate for irrigators who are willing and able to restrict their electric usage to pre-determined non-peak times. This particular rate requires that the member react to restrict operation during preset periods or be billed at a higher rate. DEC does not actively manage control periods.

Through 2011 DEC has 48 members signed up for the IR-DOP rate representing an estimated annual average monthly peak demand of 138 kW.

DEC also offers an active program for our irrigation, poultry farms, as well as other agriculture and non-agriculture commercial accounts with the Large Commercial – Controlled Load **(**LC-CL) rate. Here, DEC installs a switch on the member's equipment that remains under the control of DEC. The Cooperative turns off such equipment during peak, high priced periods utilizing the same technology employed with our residential load management program. Through 2011 DEC has 480 members signed up for the LC-CL rate and representing approximately 12,615 kW of load under control.

Together the total load managed under DEC's rates and programs is approximately 30,000 kW/month or 8.2% of DEC's historical peak load.

II. g. Continue to review and refine design practices to capture infra-structure and equipment efficiencies.

1. **Transformer utilization**
2. **Transformer and streetlight locations**

Each new three phase service is evaluated by supervision to determine the best transformer size. We will develop an automated feature for the field engineers to use, in Stakeout, to automatically size transformers based on industry criteria.

DEC continues to refine the process of development infrastructure design to minimize the number of transformers used, thereby minimizing capital investment, and no load losses.

DEC has reviewed the tariff regarding street lights. One of the issues that was raised was the need for placing lights closer to a transformer, to eliminate our exposure to cuts as well as cost of installing lights at a distance away from the source.

II. h. Continue the deployment of our AMR/AMI to minimize field trips saving energy and delivery costs and reducing losses.

DEC has developed and is in the process of implementing the installation of electronic meters on every single phase 200 and 320 amp small commercial and residential locations, within our service territory. At the present time we have electronic meters at 60,000 member locations and plan on completing the installation of the targeting member group of 80,000 by the end of 2009. There is no separate charge for the program and there will not be any rate recovery increase to our membership for this program.

The electronic meter program also known as Automated Meter Reading (AMR) is fully cost justified base on the operational efficiencies achieved from the program. Some of the savings are achieved as outlined:

- Increased efficiency of the meter in recording actual kWh usage.
- Decreased meter reading resources required to read meters.
- Reduced vehicles required to read the meters.
- Improved load management signals for our demand side management program.
- Improved reliability achieved through the fine tuning of the distribution system to transmit the signals to and from the AMR.
- Reduced field trips for meter re-reads and succession readings.
- On demand readings for members.
- On demand voltage and current profiles.
- Outage management and momentary reporting capabilities.

The electronic meter system we selected works on the same platform that our SCADA and Load Management systems work on and provide for the ability to utilize existing infra structure, technology and provide for an upgrade in technology in some instances. Finally, the other two systems as well as our OMS system is enhanced through the integration of the electronic meter system.

II. i. Investigate and develop opportunities to utilize time of use rates to shift energy and demand usage patterns.

DEC has had time of use rates and interruptible rates in place in the past. Our interruptible rate program consists of dropping commercial systems during peak periods, while our residential program consists of controlling over 26,800 appliances. We are continuing with the development and implementation of these programs.

We have recently started the development for new time of use rate programs for both commercial and residential members. In the past we have had zero participation with our residential population in shifting load to off peak periods. However, we will try again to achieve a value for our members as they request options.

Currently DEC has a majority of the poultry growers and irrigators participating in off-peak rates that provide significant and direct savings to those participating members as well as reducing capacity charges to the Cooperative thus providing savings to all member-owners. Through 2011 DEC has 182 irrigation and 285 poultry members participating in load control.

II. j. Irrigation Grant Program

The Delaware Electric Cooperative (DEC) Irrigation Grant Program is designed to assist those irrigation systems currently using a fossil fuel distributed generator to operate their system to convert to an electric system while participating in DEC's Demand Side Management (DSM) controlled load program. The program is also available for new irrigation services meeting the qualifications of the program however the program is not retroactive for existing accounts.

Funding:
This is a pilot program, effective November 1, 2011, for DEC and funding is limited. DEC has seeded the fund with $300,000 for the 2011-2012 year. The Cooperative will provide the grower's 50% cost share for installations up to a total Cooperative investment of $15,000 per installation for infrastructure installed across the grower's property. Example: Cooperative pays $7,500 and Cooperative covers the growers $7,500. Any infrastructure investment required after that would be under the existing terms of the tariff. The grower has the option to mitigate the cost of installation by supporting installation costs, trenching, etc.

Eligibility & Qualifications:
Only those systems which have a minimum of 40kW load are eligible for program funding. Funding is limited and DEC reserves the right to discontinue the program without notice. As a condition for grant qualification recipients must agree that the new electric irrigation service will be placed on the DEC Large Commercial – Controlled Load[1] rate and operate within the requirements of that rate schedule. The Cooperative would reserve the right to select the cost share candidates based on electrical system requirements, focusing on the most cost efficient installations first. All additional infrastructure requirements will be handled according to the terms and conditions in our electric service tariff. Member-owners of DEC shall be limited to one grant under this program.

Term of Contract:
In exchange for a DEC grant recipients will be required to sign a contract for Controlled Load Service for a minimum of sixty (60) months

Member Conservation And Energy Education Plan

III. a Promote the "Beat the Peak" program to encourage members to join in reducing energy during peak energy periods to mitigate demand expense, improve load factor and reduce the average cost per kWhr. Develop sustainability to defer long term capacity additions and help mitigate the environmental impacts during peak times.

Identify the merits of a "Beat the Peak" Program marketed to our membership through the monthly newsletter, our website and bill stuffers. Peaks typically occur daily from 7 to 9 am and 4 to 6 pm when our members use the greatest amount of electricity at any one time. Our "Peak" Program will educate and inform our members about the benefits of such a program. The "Beat the Peak" program will be a voluntary program in which members will be asked and encouraged to conserve or limit energy usage during peak times when the Cooperative may be purchasing wholesale power on the market when prices exceed certain thresholds. By limiting the amount of wholesale power purchased during these peak, high-priced periods, the Cooperative can reduce its total wholesale power costs and minimize potential increases in our power cost adjustment (PCA).

What is the "Beat the Peak" program?

The "Beat the Peak" program is an economical way to engage utility rate-payers to increase the value of their energy consumption, while reducing their cost and helping the environment. The program focuses on education, information and conservation to assure that the utility workforce and its users can easily understand how their actions increase and / or decrease the use of energy, cost of energy and impact on the environment. The goal is to provide actionable information in preparation for and in real time to users so they can modify their usage habits, mitigate the negative impacts of wasteful energy practices and capitalize on the smart use of energy.

The most important part of the Smart Electric Grid is the end user. When we can provide them with actionable information from which they understand what they need to do to increase the value of their energy purchase or mitigate the negative impacts of bad decisions, they will respond. We have proven that fact with our evolving "Beat the Peak" program and we have educated our users to increase their energy purchase value and save themselves money.

Using technology to support our efforts is not hard. At Delaware Electric Cooperative we have installed smart grid equipment that supports our efforts to provide the most up–to-date practices which support our members ability to use energy more efficiently. Our smart grid applications are growing everyday as the existing applications are listed below:

- Smart meter applications- 100% residential completed by the end of 2010
- 20,811 Switch and Save load management switches in our homes
- 44,785 email addresses which we communicate important peak information to our members.

- 476 interruptible members receiving signals to turn-off their commercial equipment or turn on their generator.
- 44,251 Beat The Peak indicator lights distributed to the DEC membership
- SCADA smart grid technology monitoring all electrical equipment operating characteristics like loads, voltage, reactive power, blinks and interruptions.
- Voltage control technology to reduce our voltage during peak periods which in turn reduces our load.

We have also taken another giant step in the utilization of our existing smart grid to communicate real time information to our members so they can react immediately to market and system load peaks and emergencies. Delaware Electric Cooperative along with Cooper Power Systems has designed, manufactured and delivered 30 proto-type "Beat the Peak" Indicator Lights which, when plugged into the kitchen counter wall socket, provides real time pricing signals to our members through the smart grid infra-structure. In short, the Indicator Light signals them to cut back on their power usage for the selected period of time. This idea has been adopted nationally by the National Rural Electric Cooperative Association. This device is provided at no cost to our members.

The "Beat the Peak" program at Delaware Electric Cooperative provides more than just energy savings during these tough economic times. By keeping our rates low we are able to provide more disposable income for our members so they can support the economy with more real dollars immediately.

III. b. Support member-owners in the installation of renewable energy and conservation projects through grants from our Renewable Resource Plan.

Working with our Legislature the Cooperative created the Renewable Resource Plan that provides grants to members of the Cooperative that install renewable energy projects such as solar, wind, geothermal heating and cooling systems and fuel cells. The Plan is funded through a small charge to all members on each kWh sold. Since its inception in 2006 the plan has provided over $3,000,000 in grants for 314 geothermal heating and cooling systems, 163 solar installations, 11 solar hot-water heating systems and 12 small wind turbine projects. In addition the funds may also be utilized to support DEC's demand side management programs.

The program is designed partly as a demand side management tool that provides benefits to all member-owners through reduced capacity costs as well as empowering member-owners a greater control over their energy usage and reducing their "carbon footprint" on the environment.

Reference: Delaware Electric Cooperative Renewable Resource Plan

III. c. Continue investment and support of our compact fluorescent light bulb program.

DEC has long been committed to energy efficient lighting. Since 2006 the Cooperative has distributed to its membership over 140,000 compact fluorescent bulbs (CFL's). Compared to a conventional incandescent bulb these CFL's will save 6,112,056 kWh's annually, saving our members over $700,000 per year in electric costs.

CFL's are typically give out to each of our registered members at our Annual meeting. A package of 3 CFL's is given to each member joining our Beat The Peak program.

DEC will continue to encourage and promote the use of energy saving compact fluorescent light bulbs and review advancements in energy efficient light emitting diode (LED's) lights as part of our ongoing lighting program.

III. d. Evaluation of Light Emitting Diode lighting technologies.

DEC continues to evaluate LED technologies and has embarked on a three year program to replace all 444 highway high pressure sodium lights with new LED technology. The relamping will reduce energy consumption by 609 kWh per light for a total annual savings of 270,396 kWh when completed. The longer lamp life, 60,000 hours for LED vs 24,000 hours for HPS results in lest maintenance of the life of the lamp.

Unique for 2012 DEC will begin offering a program to upgrade almost 60 poultry houses to high efficient, long lasting, LED lighting. Under this program funded by DEC along with a grant for the Delaware Energy Efficient Investment Fund will provide LED lighting to members at a significant discount. The new lighting is expected to save the typical poultry grower 9,834 kWh per year per poultry house. Combined savings are expected to exceed 570,000 kWh per year.

Poultry LED Lighting

Highway LED Lighting

III. e. Heat Pump Water Heater Rebates

DEC continues the exploration of new energy technologies with our rebate program for heat pump water heaters. Heat pump water heaters use electricity to move heat from one place to another instead of generating heat directly. Therefore, they can be two to three times more energy efficient than conventional electric resistance water heaters. To move the heat, heat pumps work like a refrigerator in reverse.

While a refrigerator pulls heat from inside a box and dumps it into the surrounding room, a stand-alone *air-source heat pump* water heater pulls heat from the surrounding air and dumps it—at a higher temperature—into a tank to heat water. You can purchase a stand-alone heat pump water heating system as an integrated unit with a built-in water storage tank and back-up resistance heating elements. You can also retrofit a heat pump to work with an existing conventional storage water heater.

For 2012 DEC will be providing grants to member-owners who purchase and install an EnergyStar heat pump water heater. Our rebate of $300 will provide for 100 new high efficient water heaters to be installed by our member-owners this year. The annual savings per unit is estimated at 1,750 kWh for a combined savings of 175,000 kWh per year.

III. f. Promote and encourage the smart use of energy to our membership and the media with an emphasis upon energy conservation and energy efficiency education programs to include lighting and appliances.

Recommend and encourage that members replace standard incandescent lighting, wherever possible, with compact fluorescent lighting (CFL) which is four times more energy efficient than incandescent lighting while providing the same light. Although CFL bulbs are more expensive to purchase they pay for themselves over their lifetime. Recommend and encourage that members consider replacing older, less energy efficient appliances with more energy efficient ones, especially those that have earned the ENERGY STAR label. ENERGY STAR appliances have been identified by the Department of Energy as being the most energy-efficient products in their classes. The promotion of this initiative is through our monthly newsletter, the website, bill stuffers and booths at the annual meeting and the State Fair. Our website contains energy savings tips with a link to compute CFL savings and we periodically identify energy tips in our monthly member newsletter. Additionally, we send seasonal (winter/summer) energy tips to the media in our area for publication in our daily and weekly newspapers as well as making energy savings presentations throughout the area to civic clubs and other groups and often supplement our presentations with the distribution of our CFL bulbs. We also provide energy savings booklets prepared by the United States Department of Energy. This energy booklet is also on our website. We also periodically remind our membership about some Grant Funding monies that we have available for Geothermal, Wind and Solar applications and Fuel Cells.

III. g. Encourage additional membership participation in residential load management programs.

DEC will continue to market, promote and advertise our residential load management $witch & $ave Program targeting specific delivery points and residential subdivisions. As of December 31, 2011 we were controlling 17,203 water heaters and 9,596 central air units with 20,811 switches. Our goal for switch installations is 1,000 for 2012.

III. h. Continue the development of efficiency and cost savings education of our commercial members including energy management options.

We have a monthly electronic newsletter sent to our commercial members and we have periodic site visits by our Member Accounts Manager all aimed at educating and informing our commercial members about their energy options.

Your Delaware Electric Cooperative Business Energy

Business Energy Is: | Ask an Expert | Tools You Can Use | eLibrary

Kevin Yingling
Member Account Manager
Contact

oing Underground—Hybrid Geothermal Heat Pump Systems

Under certain conditions, hybrid geothermal heat pump (GHP) systems are very attractive.
more...

Energy Details of the Stimulus Package

Roughly $48 billion of the $789 billion stimulus package of tax cuts and new federal spending is appropriated for energy.
more...

QUICK QUIZ

What is the volume of one metric ton of carbon dioxide?

A. 20,000 cubic feet
B. 200,000 cubic feet
C. 2,000,000 cubic feet

see answer

Choices, Choices: Get Help with Your Motor Upgrade Decisions

Considering a motor upgrade? Use the Motor Cost Savings Calculator to help determine potential savings.
more...

LED Lighting for Homes

LED technology has come a long way, expanding into a variety of residential applications.
more...

Landscape Irrigation for Your Business: Water Conservation Strategies

Water-efficient landscape irrigation practices can save your company money on your water bill and help to ensure the future of the nation's freshwater supplies.
more...

III. i. Continue the expansion of our out-reach education programs to all members of the Cooperative through speakers bureau opportunities.

2012 will see an enhanced comprehensive media communications plan that educates and informs our members of energy efficiency, conservation initiatives and programs.

- Energy efficient appliance information: Provide information regarding the savings available in the installation and operation of energy efficient appliances and equipment through various media.

- Energy efficiency improvements to their homes and businesses: Provide information through media sources for residential and commercial energy efficient programs and applications.

    - Utilize Web pages to promote energy efficiency for members. DEC currently has the following links to various web sites directed at energy savings and efficiencies:
      EnergyAdvisor – Analyze Your Home's Energy Efficiency
      Home Energy Reference – Home Energy Library
      Kids Korner and InteractiveEnergyHome
      Appliance Calculator
      Delaware Energy Office
      Energize Delaware

    - Provide tools to help member quantify energy conservation and savings. Evaluate the potential of placing on our web site a compact florescent light bulb savings calculator.

Enhanced communication tools will utilize radio talk show opportunities to showcase existing programs and benefits and member education.

III. j. Commercial Account Representative reviews with major accounts regarding their energy management programs.

This is a continuing program whereby our Member Account Manager stays in touch with this very important member segment.

Periodic visits with our larger members includes an analysis of their rates and an analysis of their kWh usage, billed kW, kVar, power factor and any rate options that may be available.

III. k. Develop energy and environmental management programs to maximize energy efficiencies at the DEC corporate facilities.

DEC is committed to a program of continuous energy conservation by all employees. Although DEC already utilizes an energy efficient geothermal heating/cooling system, DEC management encourages further development of internal and external energy efficiencies and innovative technologies in support of Cooperatives and national energy efficiency policies.

To this end, our objective is to operate the corporate facilities as an example of energy and environmental stewardship to our employees and member-owners alike. We will:

- Continue to monitor the corporate building geothermal HVAC system, track usage and investigate ways to operate more efficiently.

- Evaluate efficiency of lighting in DEC's facilities and develop a strategy to increase efficiency through hardware, software and technology.

- Investigate the potential for utilizing renewable generation to serve a portion of the Cooperate facility requirements.

- Expand our recycling program. DEC currently recycles the following products (lbs. recycled in 2011):
  - Aluminum – 27,500 lbs.
  - Copper – 4,235 lbs.
  - Tin – 8,540
  - Steel – 135 lbs.
  - Dirty Steel – 10,720 lbs.
  - Wood pallets – 19,100 lbs.
  - Cardboard – 53,500 lbs.
  - Wood poles – 64,000 lbs.

- Continue use of low sulfur diesel fuel in vehicle fleet and investigate energy efficiencies in our gasoline powered vehicles.

- Identify and evaluate alternative energy vehicles for fleet upgrades and replacements.

- Evaluate the potential for upgrades to existing distributed generation assets that might permit use as a demand side management tool.

III. l. Develop and maximize opportunities at the State and Federal level to utilize stimulus dollars to support efficiency, conservation and renewable programs.

DEC has actively participated in analyzing and reviewing the American Reinvestment and Recovery Act to identify opportunities that might maximize federal stimulus dollars allocated to the State. DEC member-owners have received over $1,000,000 in stimulus grants for the installation of photovoltaic systems, small wind turbines and geothermal heating and cooling systems. DEC has been successful in receiving a $30,000 grant from the Delaware Energy Efficiency Investment Fund to help subsidize our poultry lighting program. The same fund has provided a $300,000 "companion" grant to help DEC member-owners that are participating in our Irrigation Grant Program to reimburse them for a portion of their non-utility costs to convert diesel generators to electric. A $7,500 USDA grant allowed DEC to implement a small pilot program for outdoor LED security lighting.

Reference Documents

These documents may be considered confidential and / or proprietary. Upon written request limited access to these documents may be granted by the CEO/President.

a. *Delaware Electric Cooperative Annual Supply Planning Report*
b. *Delaware Electric Cooperative 2010 Power Requirements Study*
c. *Old Dominion Electric Cooperative Crossroads II Accord*
d. *Old Dominion Electric Cooperative Second Amended and Restated Wholesale Power Contract*
e. *Old Dominion Electric Cooperative Policy on Addition of Non-Native Load*
f. *Delmarva Peninsula Planning Association Charter*
g. *Correspondence to PJM re: MAPP*
h. *Delaware Electric Cooperative Renewable Energy Rider (RER)*
i. *National Renewables Cooperative Business Plan*
j. *Demand Side Management (DSM) Annual Report*
k. *Delaware Electric Cooperative Renewable Resource Plan*