

# Study of Potential for Energy Savings in Delaware

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Prepared for



by



with



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## APPENDIX F: RESIDENTIAL PROGRAM CONCEPTS DESCRIPTIONS

## NEW CONSTRUCTION

The Residential New Construction (RNC) Program is first described on page 49 of the “Program Portfolio Design” section of the report and is one of the program strategies used to develop Program Potential results. The Table below summarizes the energy this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program.

### Residential New Construction Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
37,919	4	44	16	21

### Market Segment (including Major End-uses and Technologies Promoted)

The proposed Residential New Construction (RNC) Program will work with builders, contractors, architects, developers, code officials, and suppliers to optimize the energy efficiency of new homes in Delaware as they are designed and built. The program will focus on providing these services for single family homes, duplexes, and small multi-family structures that contain fewer than ten living units. The program will be available to both independent builders who may work on only one home at a time and those developers whose business model favors multi-year build-outs of residential developments that contain hundreds of homes. The program will provide similar program services regardless of heating or hot water fuel choice and will address all key end uses and building systems in the home. These include insulation, window performance, air leakage, HVAC system efficiency, mechanical ventilation, lighting, appliances, and hot water heating.

### Delivery Model

The program will take a two-branched approach to generating more efficiency in residential new construction by engaging both with the designer/developer/builder communities and with Delawareans who are in the market to purchase new homes. A program implementation contractor will be procured through a competitive solicitation and will be responsible for day-to-day implementation of the program. The program implementation contractor will be responsible for assuring that an array of technical assistance including plan review and recommendations, completion of code compliance documentation, performance testing (air and duct leakage), etc. are available to builders. Ideally these technical services will be provided by independent Home Energy Rating (HERS) companies with program incentives designed to partially offset the rating costs in addition to the measure costs. However, if there is insufficient capacity of HERS companies, the program implementation contractor may need to provide these services on an interim basis either through subcontracts or direct staff.

Concurrent with outreach to the building community the program will provide information about the benefits of energy efficient housing to Delaware's current and future home buyers, primarily through the web, coop advertising with builders, and through earned media. This approach will increase awareness of efficient options in new housing while simultaneously increasing the market's ability to supply the housing that the market seeks.

Multiple paths to participation will encourage builders to increase their level of savings over time. Bundled technical support and financial incentives will simultaneously address multiple barriers, supporting the participation of a variety of builders with different levels of interest and current knowledge of efficient building practices.

### **Services/Incentives Offered**

The services that will be offered in the new construction program are organized by the designated recipients: the design/develop/build community, and the pool of current and future homebuyers.

#### **Services for the design/develop/build community**

The energy efficiency expertise of Delaware's building community needs to be better understood prior to detailed implementation planning for the residential new construction program. In all likelihood, there are varying levels of knowledge and expertise. A strong focus of this program will be to ensure that all builders are able to participate, and that all builders who choose to participate are provided with technical assistance tailored to their specific needs. Insufficient technical knowledge is a consistent barrier to more efficient new construction. Any builder who uses modern building materials must address an increasingly complex set of building details that determine the difference between a durable, energy efficient and comfortable home and one that may face significant moisture damage, high energy bills, and uncomfortable residents. The program will provide training and one-on-one technical support to ensure that builders have the information they need to achieve the former. The program will also support increased building envelope and duct testing services, both as part of the verification process for program and building code compliance and as a training tool to assure that builders understand air and duct leakage issues and are equipped to address them. In addition, financial incentives will be provided to builders to offset the higher initial costs associated with more efficient construction practices.

#### **Services for current and future homebuyers**

The services that will be provided to homebuyers will largely consist of information services: information that will inform them of the benefits of energy efficient construction, and let them know how to identify homes that meet the efficiency criteria set forth by the program. This information will be provided through a website, coop advertising with builders, public service announcements, and participation in home shows and other events where potential homebuyers may congregate. Direct incentives to homebuyers are not contemplated for the initial program offering. Incentives will be paid to builders to offset the additional costs that they incur in building to a higher efficiency standard. Offsetting these costs allows the builders to build a more efficient home without putting themselves at a competitive disadvantage on price.

Incentives will be provided for whole house performance using a tiered approach, with greater incentives available for greater levels of efficiency. Additional incremental incentives may be offered for specific non-standard measures such as heat recovery ventilation, TopTen USA appliances, or drain water heat recovery, though these will not be the primary focus of the program. The three program compliance paths will include:

- An entry-level option comprised of technical assistance and tiered incentives tied to building homes that are more efficient than residential code in Delaware (currently IECC 2009). This option will be designed to be manageable for builders who are new to energy efficient construction practices. In other words, with technical support and modest incentives any Delaware builder should be able to succeed at this level without dramatic changes to current practices.
- ENERGY STAR Homes Version 3 (V3) will be offered as the second tier of program participation. Meeting all of the requirements associated with V3—especially the non-energy, durability-focused requirements—may be a barrier to participation, particularly for builders new to ENERGY STAR and/or highly efficient construction, however it will provide a highly visible achievement for participating builders, and will clearly distinguish them in a competitive marketplace.
- An advanced option that significantly exceeds ENERGY STAR will be the highest program tier. Homes built to this standard will be dramatically more efficient than a typical code-compliant home, and will require a significant level of additional effort of the designer/builder community. This tier will include a requirement that participating homes be net zero energy capable to provide a platform for meeting Delaware’s legislative mandate (SB 59) that requires all homes built after December 31, 2025 to be net zero energy capable.

### Best Practice Features

Delaware’s residential new construction program will feature the following best-practice program elements:

- Bundle incentives with technical support and market outreach for a comprehensive, multiple end use, and multiple fuels approach
- Utilize tiered participation levels to engage builders and developers with different levels of experience with efficient construction and allow them to become increasingly efficient
- Offer increasing incentives for increasing levels of efficiency
- Address multiple barriers, including lack of technical knowledge, lack of awareness of energy efficient opportunities, and increased first costs
- Provide “one-stop shopping” for comprehensive services—meaning that there will be a single phone number, web site, and point of contact for builders and homebuyers to gain access to all of the program’s services

- Emphasize not only the energy savings associated with efficient new construction but also its sustainability, increased comfort, lower carbon footprint, and lower overall cost of ownership, including potentially lower monthly ownership costs due to lower energy bills
- Support builders and developers through coop advertising to promote increased consumer marketability
- Provide simplified code compliance documentation as a benefit of participation
- Coordinate program standards with codes and state legislative mandates

## RETROFIT/HOME ENERGY SERVICES

The Retrofit/Home Energy Services Program is first described on page 50 of the “Program Portfolio Design” section of the report and is one of the program strategies used to develop Program Potential results. The Table below summarizes the energy this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program.

### Retrofit/Home Energy Services Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
154,100	33	280	316	109

### Market Segment (including Major End-uses and Technologies Promoted)

The Retrofit/Home Energy Services program will be offered to owners of single family homes, duplexes, and small apartment buildings having no more than nine living units. The program will be available both for owner-occupied homes and for rental properties where the owner agrees to the program terms. The program will be comprehensive in that it will be available to homes using any of the commonly used energy sources for heating and cooling: electricity, natural gas, fuel oil, and propane. It will also be comprehensive by providing efficiency solutions for all end uses in participating homes wherever those solutions are cost-effective and in the best-interest of the owners and occupants.

Home retrofit services that are truly comprehensive address three major areas to determine how much energy is used in any given home. These are:

- The insulation and air leakage levels of the building structure, including walls, windows, ceilings, exposed floors, foundations, etc.
- The efficiency of the mechanical systems that heat and cool the indoor environment, heat water for domestic purposes, clean and dry clothes, make light, keep food cold, etc.
- The ways that the buildings’ occupants operate their homes: how they set the thermostat, how much laundry they do, etc.

The Retrofit/Home Energy Services program will address all three of these areas through a combination of contractor services and program-driven education and outreach.

### Delivery Model

In order to be effective, comprehensive home retrofit services need to be delivered by a workforce that has specialized expertise not only in home construction and repair, but also in techniques that reliably deliver real energy savings. In order to ensure that such a workforce exists, and to manage day-to-day operations of the program, a program management and implementation contractor will be hired through a competitive solicitation. To the extent

needed, the program implementer will be responsible for providing training to the local workforce. Regardless of the experience level of the contractors, the program implementer will ensure that they adhere to standards by operating a rigorous quality assurance process. The implementer will also be responsible for creating and operating a job completion process that guides participants and contractors through the required steps from home energy assessment to final verification of the installed measures.

Home retrofit services for Delawareans will be delivered using a contractor-driven model, where Building Performance Institute (BPI)-accredited<sup>1</sup> firms will sell their services to homeowners, using certified technicians to install long-lasting efficiency improvements while maintaining the integrity of the building and the health and well-being of the occupants. The Retrofit/Home Energy Services program will provide support both to contractors in the form of technical training and in the marketing of their services, and to homeowners by providing information, maintaining a list of participating contractors who comply with program expectations, and by providing quality assurance to verify that participating contractors do indeed meet the requirements of the program.

### Services/Incentives Offered

The goal of this program is to provide motivation, opportunity, and financial support to Delawareans so that they invest in reducing the amount of energy used in their homes. These goals are further described below.

- **Motivation** – The program will inform homeowners about the benefits of home energy retrofits, provide testimonials of friends and neighbors who can attest to the benefits of doing an efficiency project, and strive to create the sense that having work done to save energy makes sense and makes one a strong member of the community.
- **Opportunity** – Often homeowners want to save energy at home, but do not know what kind of work to have done or who to have do it. The program will maintain ready access to a listing of participating contractors who have the training to do effective energy efficiency retrofits, meet technical qualifications, have acceptable amounts of insurance, agree to program requirements for warranties, and meet the requirements of the program’s Quality Assurance program.
- **Financial Support** – For many homeowners, even after they understand the opportunity and have found a qualified contractor, the costs of carrying out a project are simply too great, even when the savings will outweigh the costs over the long term. To ease the first-cost burden, the program will both provide access to modest incentives (designed to cover between 10% and 50%

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<sup>1</sup> Depending on the market presence of BPI-Accredited contractors it is likely that a ramp-up period will be required before the accreditation requirement will be put in place. Regardless of the timing of the accreditation requirement, the program will require that jobs be conducted under the supervision of individuals who have the relevant BPI certifications.



of the measure costs) and attractive financing to ensure that Delawareans can reap the benefits of reduced home energy use.

Participating contractors will be required to take a comprehensive approach, meaning that the services offered to participants must be tailored to the opportunities in each house they assess and include increasing insulation levels, reducing air and duct leakage, appliance upgrade opportunities, and improvements to HVAC and DHW systems. The program will also include direct-installation of efficient lighting products by participating contractors at no cost to homeowners.

### **Best Practice Features**

Delaware's Retrofit/Home Energy Savings program will include the following features found in the industry's best programs:

- Financial incentives will be bundled with technical support and information to increase participation. Both direct financial incentives and financing will be available to participants.
- The program will address opportunities to save electricity and other fuels that provide energy in homes, including natural gas, fuel oil, propane, etc.
- Participation processes will be designed with the customer's interests in mind and kept simple and readily understandable by a non-technical audience.
- After a suitable ramp-up phase, participating contractors will be required to obtain accreditation from the Building Performance Institute, the independent body that oversees the technical qualifications of home energy efficiency contractors. Contractors will be required to adhere to the installation standards promulgated by BPI.
- From the outset, participating contractors will be considered to be partners in the program. They will have a role in identifying program priorities and will have input in designing participation processes.
- Contractors will carry out assessments of the opportunities to save energy in each home and will perform diagnostic testing to assure that opportunities are identified and that any pre-existing or potential indoor air quality or safety issues are addressed.
- The program will carry out a quality assurance protocol to ensure that program standards are met. The protocol will include both on-site verification for a random mix of projects and customer satisfaction surveys for all participants.

## MULTI-FAMILY

The Multi-Family Program is first described on page 51 of the “Program Portfolio Design” section of the report and is one of the program strategies used to develop Program Potential results. The Table below summarizes the energy this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program.

### Multi-Family Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
13,215	3	44	11	12

### Market Segment (including Major End-uses and Technologies Promoted)

Delaware’s multi-family program will address residential structures that contain 10 or more living units. According to the 2011 American Housing Survey there are roughly 40,000 housing units in Delaware in buildings containing 10 or more units—or roughly 10% of Delaware’s housing. To most effectively address the unique barriers that typically exist in the multi-family market, this single program will address a broad range of savings opportunities in the MF market segments. The program will address retrofit and new construction projects; all fuel types including natural gas, electricity, and delivered fuels; and all income levels, from limited income and affordable housing to luxury market rate housing.

Multi-family housing is an increasingly important segment of the housing market, yet providing comprehensive energy efficiency services to people who live in apartments can be difficult and is often overlooked by efficiency programs. At the root of this is the split incentive issue described previously in the “Understanding Barriers” section of the report. For instance, in many cases the tenants in an apartment building may receive heating and cooling from a central system for which the landlord pays the bills, providing the tenants with little incentive to use energy efficiently. The converse is also true; in multi-family structures where the tenants pay the utility bills the landlord may have little motivation to pay for efficiency improvements. This challenge is found across the full spectrum of multi-family housing, from subsidized affordable housing to market-rate luxury apartments. It exists both in new construction (where the developer who takes on the added costs of building-in efficiency may not reap the benefits of lower operating costs) and in retrofit situations.

The program will support cost-effective improvements in all end-uses regardless of the energy type used, including:

- Improved lighting, both in-unit and common areas
- Low-flow showerheads and faucet aerators
- Appliance upgrades
- Cost-effective savings in the building’s thermal shell (wall and ceiling insulation, draft reduction, window improvements)

- Whole-building mechanical systems (e.g., heating and cooling equipment, water heating equipment, laundry, and ventilation systems)

### Delivery Model

Delaware’s Multi-family program will take a comprehensive approach to providing energy efficiency services in this sector and will work with property owners, managers and tenants to address the full spectrum of energy efficiency opportunities. A program implementation contractor will be procured through a competitive solicitation and will be responsible for day-to-day implementation of the program. Initial engagement will be with the property managers, who serve as the liaison between the financial and operational needs of the property and the human needs of the people who live there. Program staff will reach out to property managers to hear first-hand about the challenges they face in managing their properties and will develop packages of efficiency options that can either overcome existing constraints or work within them. This is a notably different approach than some have tried, where a prescriptive, one-size-fits-all rebate package is offered on a “take it or leave it” basis.

The key to success in the multi-family market is the strong relationships that program staff will build with property managers and developers. Typically multi-family housing represents a long term investment for its owners, who may be either development companies or affordable housing providers. While the technical opportunity for a multi-family retrofit may be available and “there for the taking,” the financial and practical opportunities often vary due to circumstances that have nothing to do with energy. For example, the opportunity to replace appliances with more efficient ones is much greater when a property is already planning to replace the appliances for maintenance reasons. Similarly, it may be easier to persuade a property manager to install insulation when an unrelated renovation project—with its attendant disruption to the property and its tenants—is already planned. Establishing relationships with these decision makers allows the program to become aware of and be ready for these naturally occurring opportunities.

### Services/Incentives Offered

For existing properties, energy-saving opportunities will be identified first through a free walk-through audit that will assess improvement areas that merit further study. For new construction projects or for those existing properties where significant renovations are already planned or underway, program staff will meet with the project design team to review plans and prioritize energy efficiency opportunities. Opportunities will be assessed in the following areas:

- Direct installation of low cost measures in tenant units, including energy efficient lighting and water saving showerheads and faucet aerators
- Efficient lighting for common areas such as hallways, entries, etc.
- Appliance upgrades
- Major system upgrades for heating, cooling, ventilation, and laundry equipment
- Thermal shell improvements such as added insulation and air leakage reduction

Cost and savings estimates will be developed and packaged with an offer of incentives and financing designed to meet the financial needs of the property. Packages will include targeted construction management support, tenant and facilities staff education on how to maximize the benefits of the energy efficiency project, and quality assurance and verification services to ensure that the project is installed according to specifications. The program will also provide technical assistance and limited construction oversight for energy efficiency measures.

The program will prioritize engaging property managers with comprehensive bundles of efficiency measures that address all end uses with cost-effective opportunities. The bundles will include simple measures such as direct-installation of efficient lighting, as well as any cost-effective appliance, thermal shell, and mechanical system improvements that are identified. Along with information about the benefits of the recommended measure bundle, the program will present property managers with a package of incentives and financing for the measure bundle that will be designed to overcome first cost and cash flow barriers. The packages will be comprehensive, but the program's representatives will understand that in many cases the property managers may not be able to move forward with the entire package at the time it is presented. Where necessary the program will work collaboratively with property managers to develop phased approaches to the work that will allow greater savings to occur over time rather than limit the savings potential to what the property manager can agree to at the time the offer is made.

Affordable multi-family housing services will be similar to those provided to the general multi-family housing market, but will reflect the unique circumstances and barriers experienced in this housing. In affordable housing, financial packaging that fits the needs of the project, including higher incentives, becomes even more critical, as cash-flow margins are often almost non-existent. Major efficiency projects are often most likely to occur when affordable housing is re-structuring its financing and contemplating other major rehabilitation. Building efficiency into projects of this sort requires strong relationships and regular communications between program staff and property managers in order to meet planning cycle deadlines.

### **Best Practice Features**

The following features of industry-leading programs will be included in Delaware's multi-family program:

- Relationships built with property owners and managers for sustained engagement, allowing for greater depth of savings over time
- Both new construction and retrofit projects will be eligible for services through this program to capitalize on relationships with multi-family developers and property managers
- Targeting of specific sub-sectors of the multi-family market (affordable housing, market rate) and tailored solutions for each sector's unique needs
- Comprehensive solutions addressing tenant units and common areas and systems regardless of who pays the utility bills and whether the meters are on residential or commercial rates. Solutions will also address all fuels used in participating properties

- Financial packaging including incentives and loans designed to address both first cost issues and long term cash flows
- Coordination with C&I programs for mixed-use development
- Centralized program delivery (one-stop shopping) to provide a full range of support services

## RETAIL PRODUCTS

The Retail Products Program is first described on page 53 of the “Program Portfolio Design” section of the report and is one of the program strategies used to develop program potential results. The Table below summarizes the energy this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program.

### Retail Products Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
548,167	46	497	224	139

### Market Segment (including Major End-uses and Technologies Promoted)

Delaware’s Retail Products program will focus on influencing consumers to make efficient choices when purchasing new appliances, lighting, heating, ventilation, and air conditioning (HVAC) equipment, domestic water heating (DHW) equipment, and select consumer electronics. When multiplied by thousands of transactions each year, the simple difference between purchasing a single “standard” efficiency light bulb, dehumidifier, or water heater and purchasing a high efficiency alternative will have an enormous effect on Delaware’s overall energy consumption.

Initially, the Program’s lighting component will jointly promote both compact fluorescent lamps (CFLs) and light emitting diode lamps (LEDs). Over time the Program’s focus will shift increasingly to LEDs as their price continues to fall and performance in new lighting categories improves. It is expected that by 2017 the Program will no longer be supporting CFLs.

Refrigerators, freezers, clothes dryers, clothes washers, and advanced power strips will all be considered for inclusion in the initial retail program offering. The HVAC and DHW markets are typically not thought of as purely retail markets because contractors are generally hired to install the equipment. However, the potential effect of an individual time of sale decision on long term energy use is similar to that of a retail purchase, so these end uses are included in the Retail program. For HVAC and DHW the program will work closely with contractors and distributors to promote quality installation of efficient air source heat pumps, central air conditioners, ductless split heat pumps, furnaces, boilers, tankless water heaters, and heat pump water heaters.

### Delivery Model

A program implementation contractor will be responsible for day-to-day implementation of the program including partner recruitment, requests for proposals (RFP) generation, and memorandum of understanding (MOU) execution, sales staff support and correct placement of point of purchase (POP) materials, responding to customer concerns, contractor training, and all other aspects of program operations. Marketing and outreach, which will be significant aspects

of the retail program, will either be coordinated with the portfolio's marketing team, or be included in the responsibilities of the retail program implementation contractor.

The retail program will focus principally on the promotion of efficient lighting, which will be supported at retail with upstream incentives to manufacturers and retailers to reduce the retail purchase price of their products. The program implementation contractor will issue RFPs specifying the desired lighting product types, quantities, and desired final retail pricing after incentives through a clear procurement process. Proposals will be selected and MOUs will be executed to lay out the terms of the lighting promotions.

Appliances and consumer electronics will be largely supported with midstream retailer incentives tied to the sale of qualifying products, though mail-in coupons may be required instead for some products and retailers. Continued improvements in the efficiency of many consumer products and high market shares for ENERGY STAR qualified units may allow the program to set measure eligibility criteria above ENERGY STAR to further increase the efficiency of Delaware households. Efficiency levels could be tied to those established by TopTen USA and/or by EPA's ENERGY STAR Most Efficient program.

HVAC and DHW equipment will be supported with mail-in rebates that will be assignable to the contractor who installs the qualifying equipment. The program will also offer contractor training on quality installation practices. There will be robust quality assurance/control procedures to ensure that contractors adhere to program requirements. HVAC and DHW program activities will be closely coordinated with retrofit/home energy services, multi-family, residential new construction, and income eligible efforts. After the initial year of operation the program will assess whether to pursue an upstream incentive pilot. Based on the results from any such pilot the program may move to an upstream model for HVAC and DHW initiatives to supplement or fully replace the consumer and contractor targeted rebate model.

### **Services/Incentives Offered**

The retail program will work with manufacturers and retailers to promote the stocking, marketing and sale of efficient residential lighting, appliances, consumer electronics, DHW and HVAC equipment to consumers, landlords, contractors, builders and small businesses. Nearly all supported products will be ENERGY STAR qualified, though for some product categories higher levels of efficiency may be required to qualify for rebates or incentives. The program will employ a variety of incentives and rebates supported by both broad based and targeted marketing and educational and outreach efforts. For HVAC the program will also promote quality installation practices.

In many, if not most cases, financial incentives will be in the form of payments to retailers and manufacturers to reduce the purchase price of specified equipment rather than rebates that are paid to the retail customer after the purchase. This approach, referred to as a buy down, markdown, or upstream model depending on the specific arrangement, has been highly effective at influencing the purchase of efficient equipment for much lower program costs than earlier coupon-based programs. Upstream models not only reduce processing fees paid by the program, but more importantly they dramatically reduce the time and effort required of

consumers, who no longer have to fill out coupons, find their utility account numbers, and so on.

In addition to financial support the program will provide consumers with information to inform and accelerate their choice of efficient products. This information will come in several forms, including point of purchase materials, a consumer-facing informational program website, advertising through local media channels, co-op marketing with retailers and manufacturers, and earned media. The materials will answer common questions that may have prevented customers from purchasing efficient products in the past. For lighting the materials will also address the shift to lumens as the appropriate means for lamp selection, the impacts of EISA on lamp choice and selection, and the growing advantages of LEDs as the preferred lighting technology of choice.

Hard-to-reach populations that may not normally shop at the largest sales venues for lighting such as home improvement and mass merchandisers, , will be specifically identified and targeted. This may require increased recruitment of grocery, drug and other retailers such as “dollar stores.”

For HVAC and DHW products the program will work through local wholesale distributors to reach the local contractors who install equipment in homes. Distributors are a primary source of product training for installers, and the program will leverage this ongoing relationship to link program training to other distributor events. Initially this may mean simply having a program staff person come to distributor events to give a quick presentation on the availability of the program, but may evolve to more in-depth trainings on quality installation practices that may become a program requirement. The program will also assess the opportunities to promote efficient HVAC and DHW equipment through home improvement and mass market retailers such as Sears, Lowe’s, Home Depot, and others.

### **Best Practice Features**

Delivery of the retail program envisioned for Delaware will incorporate the following best-practice features:

- Coordinated approach to overcoming multiple barriers by raising awareness, increasing access to efficient products, and reducing first costs
- Partnerships with manufacturers, distributors, and retailers to promote high efficiency, high quality products that will meet or exceed consumer expectations
- Targeted outreach to different customer segments so that all have the opportunity to take advantage of the program’s offerings
- Alternative sales/promotional venues to reach under-served customers who may not shop at big box retail locations
- Support for advancing technologies by regularly evaluating market opportunities and gradually increasing the efficiency requirements of eligible equipment
- Streamlined program participation through the use of buy down, markdown, and upstream program models



## INCOME-ELIGIBLE

The Income-Eligible Program is first described on page 52 of the “Program Portfolio Design” section of the report and is one of the program strategies used to develop program potential results. The Table below summarizes the energy this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program.

### Income-Eligible Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
97,780	20	216	119	73

### Market Segment (including Major End-uses and Technologies Promoted)

The goal of the income-eligible program is to assure that comprehensive efficiency services are available to as many Delawareans as possible, regardless of their ability to pay for them. Because they have less income to work with, lower-income households typically spend a much greater portion of their income on energy costs than does the average household. Therefore the need for efficiency is much greater, and the potential benefits can make a significant difference for these families. There are also potential benefits to the overall ratepayer base by reducing arrearages and the need for public assistance in paying utility bills. Threshold criteria for program eligibility will be established based on income criteria for related services in Delaware, such as affordable housing and Weatherization Assistance Program (WAP) eligibility. These criteria are typically either 200% of federal poverty level or 80% of area median income. The income-eligible program criteria will be determined with the goal of being as inclusive as possible while still aligning with other Delaware services for consistency across programs and ease of participation.

Fundamental to the income-eligible program is an abiding respect for the income-eligible participants. These customers are treated no differently simply because they are less able to pay for the services they receive.

Delaware’s income-eligible program will be available to existing owner-occupied single family homes and to renter-occupied single and multi-family homes containing nine or fewer living units where occupants meet the program’s income criteria. For rental properties the building owner must agree to the program’s terms and conditions, which among other things, may include an agreement to maintain the affordability of treated units for a specified period of time. Typically, participation of renter-occupied properties will also include the expectation of a financial contribution from the property owner to cover part of the cost of the efficiency improvements.

The program will strive to increase the availability of comprehensive energy savings for income-eligible households. End uses to be addressed will include:

- Building shell improvements, including insulation and air leakage reduction
- Heating and cooling system efficiency improvements
- Appliance efficiency improvements
- Water heating efficiency improvements
- Lighting efficiency improvements

Delaware's income-eligible energy efficiency program will address opportunities for reducing the use of all fuels, including electricity, natural gas, fuel oil, and propane. For these fuels, all end uses where cost-effective improvements can be made will be assessed and improvements will be made as comprehensively as possible.

### **Delivery Model**

The best income-eligible energy efficiency programs are deeply connected with the local service providers that deliver support to income-eligible people. Local providers have typically spent many years developing trusting relationships within the income-eligible community—years which will benefit the income-eligible program by increasing its ability to identify participants and the program's corresponding acceptance rate. This means more savings are achieved sooner for those Delawareans who are in the greatest need. The program will assess gaps in the energy efficiency services that are currently available to income-eligible customers in Delaware and will fill them as needed to assure that all fuels and all end uses are cost-effectively addressed. If, for example, the existing WAP delivery infrastructure is currently only able to deliver building shell improvements, then this program might provide funding that allows it to also address heating and cooling mechanical system improvements, lighting, and so on. If the WAP programs are comprehensive now, but only able to reach a small fraction of the eligible population, then this program might provide additional funding that allows WAP to reach more households.

Determining the best approach for Delaware will require a collaborative design process that includes stakeholders from area WAP providers, affordable housing advocates, and other income-eligible service providers. Stakeholders will be invited to work with program planners and staff to identify program characteristics that will lead to the greatest success. Every effort will be made in this process to reduce elements of competition for limited funding in favor of collaborative achievement of common goals.

There are several different forms that this collaborative program delivery could take. Working through local service providers might mean that the program will be most effective if it is completely delivered by local WAP providers using additional funding provided by the program. Alternatively, it might mean that an independent program delivery contractor is identified to offer stand-alone efficiency program services that are well-coordinated with a broad range of income-eligible service providers.

### **Services/Incentives Offered**

Regardless of the final program delivery model, services provided through the income-eligible program will include:

- Comprehensive energy assessments that look at all energy sources used in the homes (energy audits)
- Full cost incentives for eligible improvements in owner-occupied units (no out-of-pocket required for participants)
- Partial incentives and financing assistance for owners of rental properties occupied by income-eligible tenants
- Construction management, including identifying and contracting with installation firms
- Energy education for homeowners, tenants, and property managers, to provide tools for managing energy use
- Quality assurance

The program will adhere to the building science principles that are promulgated by the Building Performance Institute and the US Department of Energy for retrofitting buildings to increase their energy efficiency. Contractors will test for carbon monoxide issues and assure that no unsafe conditions are left after the building retrofit.

For eligible owner-occupied housing, the program will pay the full cost of the efficiency project, including the assessment cost, construction management, measure installation costs, and quality assurance. While the exact mechanisms for program operation will not be known until the collaborative program design is complete, the program or its local partner will either hire staff to perform the assessments, construction management, and quality assurance, or it will contract with industry partners and/or qualified local businesses to provide these services. Importantly, there will not be an expectation that program participants need to identify and hire these services on their own. The role of program service providers will be managed and coordinated by the program.

Program representatives will explain the recommended improvements to the participants and secure approval for the project. In the case of rental properties, program representatives will meet with property management staff and building owners to explain the recommendations, the available financial support, and the expected contribution from the owner. With approval to proceed, the program will identify installation contractors to install the improvements, verify that the installation meets program requirements, and address any customer satisfaction issues that may arise through the project.

### **Best Practice Features**

Delivery of the income-eligible program envisioned for Delaware will incorporate the following best-practice features:

- The program will partner with and extend the capacity of existing income-eligible efficiency services such as WAP
- The program will target a unique customer sub-segment— those income-eligible families who most need to reduce their energy costs

- All program services will be available through one-stop shopping—participants will not be required or expected to shop for services in the competitive marketplace
- Coordination with other programs, such as multi-family new construction and efficient products will provide benefits in all income-eligible efficiency markets

## BEHAVIOR MODIFICATION

The Behavior Modification Program is first described on page 54 of the “Program Portfolio Design” section of the report and is one of the program strategies used to develop program potential results. The table below summarizes the energy this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program.

### Behavior Modification Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
23,906	3	44	22	23

### Market Segment (including Major End-uses and Technologies Promoted)

The behavior modification program will target homeowners and renters to receive home energy reports that compare their household energy use with other similar households in their area. The program may identify target groups of customers using a number of criteria, such as local housing characteristics, relative amount of energy used, income characteristics, and so on. The specific messages contained in the reports are tailored to the target demographic. In other words, while the concept and intent are the same, the report that is sent to people who live in a neighborhood of modest, older homes might have subtly different messages than the report sent to residents of luxury condominiums. Over the course of the planned program duration more than half of Delaware’s households are expected to receive home energy reports at regular intervals for at least one year. The program will target electric use in households and will also address natural gas in households where it is used.

All end uses in homes may be effected as a result of participant actions. Home energy reports include a general call for recipients to reduce energy use, and further include specific recommended actions that can reduce energy use in specific end uses. For example, a general theme in a report might be that the recipient is using 20% more energy than her neighbors, followed by a general call to reduce her energy use. The recipient might respond to that by trying to remember to turn off lights and televisions when not in use. The report might then go on to suggest a specific action— that more efficient appliances could reduce her energy use— and include a time-limited special offer for a “bonus” incentive if she replaces her refrigerator with an advanced, energy efficient model offered through the Retail Products program.

### Delivery Model

The behavior modification program will be contracted out to one of several turnkey program contractors through a competitive solicitation. After executing agreements regarding data use, the selected contractor will obtain customer data from the utilities. The contractor will then analyze the data along with certain demographic information to identify groups of customers with higher typical energy bills. Energy reports will be provided through either

regularly mailed (typically monthly or bimonthly) hard-copy reports, web-based reporting, or a combination of the two. These reports will provide energy efficiency recommendations that are tailored to the customer and to the time of year. These reports will provide the consumer with the information and motivation to implement the recommendations.

There are several vendors, such as Opower, that can design and deliver behavioral programs to program administrators. Delaware's program administrator may pilot one or more approach before picking a single statewide approach. Any such statewide approach should allow for integrated electric and gas home energy reports and should enroll participants on an "opt out" basis, meaning that participants must make a conscious decision and undertake specific actions *not* to participate. Delaware's behavioral program may also provide for a web-based option and be able to integrate with any current or planned smart grid efforts, e.g., incorporate near or real time usage reporting.

### **Services/Incentives Offered**

Home energy reports will provide historic usage patterns and benchmark the customer's usage against other customers with similar home features and/or demographics. Although the reports do not include direct financial incentives, they help customers to see the connection between their habits and utility costs and make more economically rational decisions. Such reports also appeal to customers' desire to contribute to community goals and engage in socially desirable behavior by saving energy. . Additionally, from time to time the reports may contain coupons, special offers, or other invitations to encourage participation in other residential programs.

### **Best Practice Features**

Delaware's behavior modification program will feature the following best-practice program elements:

- Targeting and message tailored to specific customer groups based on sophisticated data analytics
- Simplified information for easy and direct actions
- Optimum report frequency determined based on contractor's experience in other jurisdictions
- Integrated electric and gas reports
- Broad reach including underserved customers, while maintaining targeting to households with the greatest opportunity for savings

## APPENDIX G: C&I PROGRAM CONCEPTS DESCRIPTIONS

## LOST OPPORTUNITY

The Lost Opportunity Program is first described on page 57 of the “Program Portfolio Design” section of the report. It consists of a large umbrella program with several different strategies or initiatives aimed at capturing savings from different segments of a diverse group of customers. The Lost Opportunity strategies in aggregate were used to develop program potential results. The Table below summarizes the energy savings this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program. The text following the table describes aspects of the specific program strategies that fall under the Lost Opportunity umbrella.

### Lost Opportunity Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
823,568	148	459	161	107

The Lost Opportunity Program attempts to influence purchasing decisions that are already occurring in the marketplace. In other words, when C&I facilities need to buy new equipment (due to existing equipment failure or planned replacement, renovation, or new construction) the program will attempt to influence the facility to purchase and install the most efficient and cost-effective equipment possible. If the facility instead gets standard efficiency equipment or builds a standard efficiency building, a “lost opportunity” is created as that building or equipment will continue to use more energy than necessary for the rest of its useful lifetime.

Because the lost opportunity market is highly time sensitive, the program needs to approach it in many different ways. Ideally, the program will integrate itself throughout the market, so that selecting higher efficiency equipment becomes the natural decision. To this end, prescriptive and upstream incentives are used to buy down the incremental cost of efficient equipment with minimal effort required by the customer. Account managers work to establish ongoing relationships with the larger customers in order to identify upcoming purchasing or renovation needs and give the program enough time to work with the customer to install the most efficient equipment possible. Technical and design assistance is available for new construction and renovation projects, in order to encourage the project to adhere to high efficiency design principles. These project components are described in greater detail below.

## Account Management

### Market Segment

Account managers are assigned to large customers, and work with those customers to implement projects regardless of technology, end-use, or what program is used to provide the incentives for the project. As such, account managers are not associated with particular programs or market segments, but with specific customers. The same account manager working with the same customer will often generate projects in multiple programs, depending on



whether the project is best defined as retrofit or lost opportunity. However, account managers are particularly helpful for lost opportunity projects. Since these projects are time sensitive, having pre-existing relationships with customers allows the account managers to identify possible lost opportunities (such as tenant fit-outs or scheduled industrial downtime) far enough in advance to allow a project to be planned and implemented, and can give customers the necessary confidence that any replace-on-failure project would move forward quickly enough to avoid significant downtime in building operation.

### **Delivery Model**

Account managers form ongoing relationships with the customer. The account manager is the primary point of contact between the customer and the efficiency program, and will help the customer develop efficiency plans, navigate the incentive process, and receive technical assistance. As a result of the ongoing relationship, the account manager will get to know the customer's specific needs and barriers to efficiency investment, and so will be able to effectively identify possible lost opportunity projects when they occur, and structure incentives in a way to help overcome the barriers of each specific customer.

### **Services/Incentives Offered**

Account management is not so much a service in itself but a means to access services offered through the rest of the program more easily. The account manager acts largely as a salesperson, selling the services of the programs to large customers and generating projects for the program. However, she may also ease the process of applying for and receiving incentives, and her close knowledge of the customer allows her to structure the incentives and offerings in the most effective and efficient way possible.

### **Best Practice Features**

Account managers will provide specialized outreach to the largest customers, providing a single point of contact in order to streamline the process of applying for technical assistance, incentive offers, financing, or other program offerings. The account managers' one-on-one relationships with their large customers will also enable them to provide specialized marketing and sales pitches for efficiency and help design incentive offers that integrate with the customers' business plans. Further, this familiarity allows the account manager to offer personalized incentives, designed to be generous enough to spur the project into completion without overpaying for the savings.

## **Prescriptive Incentives**

### **Market Segment**

Prescriptive incentives for the Lost Opportunity Program are largely meant for new construction or normal replacement projects. Prescriptive incentives are particularly well suited for normal replacement projects, as the quick turnover and low administrative burden allow the projects to be approved and processed without causing significant downtime to any of the building's equipment.

Prescriptive measures typically use a deemed savings approach to calculate savings. The idea is to use average savings, so even if the actual savings for an individual customer differs

from the deemed value, it becomes accurate over large volumes of measures. This works well for measures such as lighting, with predictable savings, but for measures with high site-specific variability and lower expected volumes, some accuracy may be lost. Prescriptive incentives, then, often involve a tradeoff between accuracy of estimated savings and the administrative ease (for both the customer and the program administrator) of processing incentives and claiming savings. Ideally, as many measures as possible are offered prescriptively without losing an unacceptable amount of accuracy in the claimed savings. There is some judgment involved in where this line is drawn, but typical prescriptive incentives for lost opportunity projects may include:

- Lighting Fixtures
- Unitary HVAC
- Chillers
- Boilers and Furnaces
- Commercial Kitchen Equipment

### **Delivery Model**

Prescriptive incentives are set at a standard rate for a particular piece of technology. For commercial and industrial facilities, prescriptive incentives will most often take the form of mail-in rebates and will typically be filled out by the contractor or vendor working on the project. Mail-in rebate applications should be designed to minimize the amount of effort and time needed to correctly fill out the application.

### **Services/Incentives Offered**

Prescriptive incentives are a direct cash rebate, either right at the store, or after a customer makes a purchase and mails in the application.

### **Best Practice Features**

Prescriptive incentives represent best practices primarily by reducing the amount of administrative burden required to disburse rebates and claim savings. As such, prescriptive incentives should be designed in a way to minimize the amount of work required by both the customer and the program administrator (but especially the customer). Further, since certain sub-segments of the C&I sector, such as commercial kitchens and groceries, tend to have similar types of technologies and efficiency opportunities, prescriptive forms can be designed that are specifically targeted to these subsectors.

## **Upstream Incentives**

### **Market Segment**

Upstream incentives are provided to equipment distributors and/or manufacturers rather than retail customers. Upstream incentives can typically be lower than standard incentives and have the same effect on the ultimate product price, because the retail markup is done from a lower base cost. Upstream incentives are completely invisible to the end customers, who are often unaware that they are buying a discounted product. As such, they are available to any market segment and building type that would buy the product in question – the program administrator has no control over who can buy and install the product. In this way, upstream

incentives significantly lower the hurdle for participation in the program, as they do not require any action by the customer. For the Delaware analysis, we assumed that only fluorescent and LED lighting will be offered upstream. However, if this program is successful, it can be expanded to other technologies, such as unitary HVAC equipment.

### **Delivery Model**

In an upstream model, cash payments are given directly to manufacturers and distributors that make or distribute products meeting high efficiency performance criteria. The incentives are given directly to the distributor/manufacturer, depending on the number of units distributed to the market. The retail customer perceives the existence of the incentive only in the lower cost of the product – no additional work or paperwork has to be completed. The upstream model allows the program administrator to leverage the manufacturers' marketing resources and greatly increase the penetration of a desired technology.

### **Services/Incentives Offered**

Upstream incentives are cash incentives to distributors and manufacturers that reduce the incremental cost of high efficiency products.

### **Best Practice Features**

Upstream incentives greatly simplify the incentive process for the customer, often enough to make them unaware that they are actually participating in the program. Further, upstream incentives can achieve significant penetration more cheaply than downstream incentives, as the discount gets applied before retail markup, and the program administrator is able to leverage the pre-existing infrastructure of the region's manufacturers and distributors. For these reasons, other jurisdictions have seen enormous increases in the penetration rates of efficient technology once program focus is moved from traditional customer-focused downstream rebates to upstream incentives.

### **Custom Incentives**

#### **Market Segment**

Custom incentives cover every cost-effective efficiency technology that is either too site-specific or not common enough to be covered prescriptively. Examples of technologies that would receive custom incentives in the lost opportunity program include:

- Newer types of LED fixtures
- Large HVAC system overhauls
- Comprehensive new construction and renovation work
- Replacement industrial equipment

Although there are no size requirements for custom projects, due to the increased administrative burden actual uptake will consist almost entirely of large and medium sized customers. Further, just because the program offers prescriptive rebates for a given technology or project type does not obligate the program administrator to treat it as a prescriptive project. This is especially true for larger customers where the program administrator may want to treat a project as custom if, for example, it is part of a larger whole building project or if the costs or

savings are very different than the deemed estimates. In these cases, the account manager will work with the customer to establish which approach works best both for the program and the customer.

### **Delivery Model**

The process for disbursing custom incentives begins when a custom application is received from a customer, vendor, or, in the case of larger customers, an account manager. Engineers will review the information on the application and prescreen the project to ensure that it is cost-effective. If not enough information is provided on the application, the program administrator or account manager may have to follow up with the customer. If the project passes the pre-screening, a site visit is conducted to ensure that the installation has not yet begun and that baseline conditions are accurately described by the application.

Next, an incentive amount is agreed upon, based on a negotiation between the account manager and the customer. Depending on the results of the negotiation, and on the specifics of the project and the customer, the size of the incentive will typically end up at between 25% and 100% of the incremental cost. However, since incremental costs can be very difficult to estimate for lost opportunity projects, the program administrator may prefer looking at the incentive level in terms of energy saving. Typical incentives for custom projects range from \$0.12 to \$0.20 per annual kWh saved . Further, the account manager may explore various financing options if they feel it will help move the project forward.

Once an incentive amount is established, the project is installed, a post-inspection site visit is conducted to ensure the project was installed as designed, and then the incentive is disbursed.

### **Services/Incentives Offered**

A custom incentive is a sum of money designed to reduce the incremental cost of efficiency projects, and thus spur more efficiency investment. The incentive amount will depend on the project, and will depend on a negotiation between the customer and the account manager, who will strive to set the incentive at an amount that will move the project forward but not overpay for savings.

### **Best Practice Features**

Because the process of applying for and receiving a custom incentive can be fairly complex, best practice implementation simplifies this process for the customer as much as possible. For large customers, their account managers can greatly simplify and guide the process and provide significant help to the customer throughout the application process. Also, a custom program will ideally be open to loans and other financing options in order to most effectively spur efficiency investment.

### **Technical and Design Assistance**

#### **Market Segment (including Major End-uses and Technologies Promoted)**

Technical and design assistance is designed for large customers with potential for large savings, but who need experts with specialized knowledge to identify the opportunities and/or

design the projects. For the Lost Opportunity Program, this may include design assistance, energy modeling, or feasibility studies.

### **Delivery Model**

Technical and design assistance is typically delivered by third-party firms with proven expertise in the relevant field. There are ideally many consultants under existing contract with the efficiency program administrator with a variety of expertise. This way, when technical assistance is needed, the program administrator and the customer can quickly select an appropriate consultant and get started on the study with very little paperwork needed and very little delay between the customer's request for technical assistance and project initiation.

### **Services/Incentives Offered**

Through pre-existing contracts with a variety of consultants, the program offers customers quick and easy access to pre-vetted expertise in their field of need. Further, the program will pay for a certain portion of any technical or design study.

### **Best Practice Features**

Because contracts are already in place between consultants and the program administrator, there is very little delay between a customer's request for assistance and project initiation. Additionally, there are no required forms or paperwork for the customer to complete greatly simplifying the participation process. As contractors are selected to cover a broad range of expertise, market niches, and customer sub-segments, customers are able to obtain customized, expert assistance even if their needs are relatively uncommon. Finally, the available cost-sharing incentives promote the development of useful studies that can help achieve long-term energy efficiency improvements in customer facilities.

## LARGE BUSINESS RETROFIT

The Large Business Retrofit Program is first described on page 58 of the “Program Portfolio Design” section of the report and consists of an umbrella program with several different strategies or initiatives. The Large Business Retrofit strategies in aggregate were used to develop program potential results. The Table below summarizes the energy this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program. The text following the table describes aspects of the specific program strategies that fall under the Large Business Retrofit umbrella.

### Large Business Retrofit Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
790,502	103	2,446	263	265

The large business retrofit program attempts to encourage large businesses to replace or add controls to their existing equipment in order to increase the efficiency of the facility. Unlike lost opportunity projects, retrofit projects are not typically time-sensitive, since the current equipment is working as is. Because the customer is bearing the full installed cost of the project rather than just the cost increment from standard equipment to efficient equipment, the economics of retrofit projects may be more challenging than for lost opportunity projects. Further, since the existing equipment is functioning, looking for possible efficiency improvements may be low on the priority list of business owners. Nevertheless, there are many opportunities for retrofits that can offer a return on investment equal to or higher than most other investment opportunities.

The Large Business Retrofit Program has many different components that work together to allow the program to help large commercial and industrial facilities identify and implement these retrofit opportunities. Account managers establish relationships with the largest facilities to help them identify cost-effective projects on an on-going basis. Prescriptive and custom incentives are used to help facilities overcome the first cost hurdle of efficiency, and custom incentives may be specifically designed to let the project meet or exceed each facility’s investment criteria. Technical and design assistance allows facilities to get audits and commissioning reports designed to identify existing efficiency or examine the feasibility of a specific project. Finally, market segmentation is used to meet the specific needs of different commercial and industrial market sectors. These programs strategies will work together to achieve significant savings from C&I retrofit projects, and each is described in greater detail below.

## Account Management

### Market Segment (including Major End-uses and Technologies Promoted)

In a typical utility, a large portion of total electric sales will be to a small number of very large customers. These large customers typically provide substantially greater savings at a lower cost than small to medium customers. Further, it is very hard for a utility to achieve significant savings in proportion of its total load without effectively addressing these customers. Therefore, account managers will be assigned to all large C&I customers. Account managers are agnostic to end-use, technology, or even specific program, and will work with the customer to help him take full advantage of the full range of the efficiency program's offerings. The account manager will work with the customer to facilitate any type of cost-effective efficiency project, whether it be a lighting retrofit, design for a renovation, or retro-commissioning on inefficient existing buildings.

### Delivery Model

Account managers will form ongoing relationships with the customer. The account manager is the primary point of contact between the customer and the efficiency program, and will help the customer develop efficiency plans, navigate the incentive process, and receive technical assistance. As a result of the ongoing relationship, the account manager will get to know the customer's specific needs and barriers to efficiency investment, and so will be able to effectively identify possible lost opportunity projects when they occur, and structure incentives in a way to help overcome the barriers of each specific customer.

### Services/Incentives Offered

Account management is not so much a service in itself as a means to easier access to the services offered through the rest of the program. The account manager acts largely as a salesperson, selling the services of the programs to large customers and generating projects for the program. However, she may also ease the process of applying for and receiving incentives, and her close knowledge of the customer allows her to structure the incentives and offerings in the most effective and efficient way possible.

### Best Practice Features

Account managers will provide specialized outreach to the largest customers, providing a single point of contact in order to streamline the process of applying for technical assistance, incentive offers, financing, or other program offerings. The account managers' one-on-one relationships to their large customers will also enable them to provide specialized marketing and sales pitches for efficiency and help design incentive offers that integrate with the customers' business plans. Further, this familiarity allows the account manager to offer personalized incentives, designed to be generous enough to spur the project into completion without overpaying for the savings.

## Prescriptive Incentives

### Market Segment (including Major End-uses and Technologies Promoted)

In addition to the prescriptive measures offered under the Lost Opportunity Program, prescriptive incentives geared toward retrofit projects such as VFDs, lighting controls, pipe

insulation, and other controls and add-on measures will be offered under the Large Business Retrofit Program.

Prescriptive measures typically used a deemed savings approach to calculate savings. The idea is to use an average savings, so even if the actual savings for an individual customer differs from the deemed value, it becomes accurate over large volumes of measures. This works well for measures such as lighting, with predictable savings, but for measures with high site specific variability and lower expected volumes, some accuracy may be lost. Prescriptive incentives, then, often involve a tradeoff between accuracy of savings claims and the administrative ease (for both the customer and the program administrator) of processing incentives and claiming savings. Ideally, as many measures as possible are offered prescriptively, without losing an unacceptable amount of accuracy in the savings claims. There is some judgment involved in where this line is drawn, but typical prescriptive incentives for retrofit projects may include:

- Lighting fixtures
- Lighting relamp/reballast
- Lighting controls
- HVAC controls
- VFDs
- Pipe/boiler/water heater insulation
- Low-flow valves
- ECMs for refrigeration
- Refrigeration door controls
- Strip curtains/night covers for refrigerated cases

### **Delivery Model**

Prescriptive incentives are set at a standard rate for a particular piece of technology. For commercial and industrial facilities, prescriptive incentives will most often take the form of mail-in rebates, and will typically be filled out by the contractor or vendor working on the project. Mail-in rebate applications should be designed to minimize the amount of effort and time needed to correctly fill out the application.

### **Services/Incentives Offered**

Prescriptive incentives are a direct cash rebate, either right at the store, or after a customer makes a purchase and mails in the application.

### **Best Practice Features**

Prescriptive incentives represent best practices primarily by reducing the amount of administrative burden required to disburse rebates and claim savings. As such, prescriptive incentives should be designed in a way to minimize amount of work required by both the customer and the program administrator (but especially the customer). Further, since certain sub-segments of the C&I sector, such as commercial kitchens and groceries, tend to have similar types of technologies and efficiency opportunities, prescriptive forms can be designed that are specifically targeted to these subsectors.



## Custom Incentives

### Market Segment (including Major End-uses and Technologies Promoted)

Custom incentives cover every cost-effective efficiency technology that is either too site-specific or not common enough to be covered prescriptively. Examples of technologies that would receive custom incentives include:

- Newer types of LED fixtures
- Industrial process work
- Insulation/air sealing
- Comprehensive HVAC work

Although there are no eligibility requirements for custom projects, due to the increased administrative burden actual uptake will consist almost entirely of large and medium sized customers. Further, just because the program offers prescriptive rebates for a customer does not obligate the program administrator to treat it as a prescriptive project. This is especially true for larger customers, where the program administrator may want to treat a project as custom if, for example, it is part of a larger whole building project or if the costs or savings are very different than the deemed estimates. In these cases the program administrator will work with the customer to establish which approach works best both for the program and the customer.

### Delivery Model

The process for disbursing custom incentives begins when a custom application is received from a customer, vendor, or, in the case of larger customers, an account manager. Engineers will review the information in the application and prescreen the project to ensure that it passes cost-effectiveness. If not enough information is provided in the application, the program administrator or account manager may have to follow up with the customer. If the project passes the pre-screening, a site visit is conducted to ensure that the installation has not yet begun and that baseline conditions are accurately described by the application.

Next, an incentive amount is agreed upon, based on a negotiation between the account manager and the customer. Depending on the results of the negotiation, and on the specifics of the project and the customer, the size of the incentive will typically end up at between 10% - 50% of the project cost. The account manager may also explore various financing options.

Once an incentive amount is established, the project is installed, a post-inspection site visit is conducted to ensure the project was installed as designed, and then the incentive is disbursed.

### Services/Incentives Offered

A custom incentive is a sum of money designed to reduce the incremental cost of efficiency projects, and thus spur more efficiency investment. The incentive amount will depend on the project, and will depend on a negotiation between the customer and the account manager, who will strive to set the incentive at an amount that will move the project forward but not overpay for savings.

## **Best Practice Features**

Because the process of applying for and receiving a custom incentive can be fairly complex, best practice implementation simplifies this process for the customer as much as possible. For large customers, their account managers can greatly simplify and guide the process and provide significant help to the customer throughout the application process. Also, a custom program will ideally be open to loans and other financing options in order to most effectively spur efficiency investment.

## **Technical and Design Assistance**

### **Market Segment (including Major End-uses and Technologies Promoted)**

Technical and design assistance is designed for large customers with potential for large savings but who need experts with specialized knowledge to identify the opportunities and/or design the projects. This may include ASHRAE audits, feasibility studies, system optimization studies, or retro-commissioning. For industrial customers, it will likely entail an industrial process study by a contractor with particular expertise in the applicable industrial segment.

### **Delivery Model**

Technical and design assistance will be delivered by third party firms with proven expertise in the relevant field. There will ideally be many consultants under existing contract with the efficiency program administrator with a variety of expertise. This way, when technical assistance is needed, the program administrator and the customer can quickly select an appropriate consultant and get started on the study, with very little paperwork needed, and little delay between the customer's request for technical assistance and project initiation.

### **Services/Incentives Offered**

Through pre-existing contracts with a variety of consultants, the program offers customers quick and easy access to pre-vetted expertise in their field of need. Further, the program will pay for a certain portion of any technical or design study.

## **Best Practice Features**

Because contracts are already in place between consultants and the program administrator, there is very little delay between a customer's request for assistance and project initiation. Additionally, there are no required forms or paperwork for the customer to complete greatly simplifying the participation process. As contractors are selected to cover a broad range of areas of expertise, market niches and customer sub-segments that may not be adequately served by other energy efficiency programs are able to obtain customized, expert assistance. Finally, the available cost-sharing incentives promote the development of useful studies that can help achieve long-term energy efficiency improvements in customer facilities.

## **Market Segmentation**

### **Market Segment (including Major End-uses and Technologies Promoted)**

Because the C&I sector contains so many sub-segments, each with its own unique set of market barriers and program needs, it is inevitable that a standard set of program offerings will not achieve any significant penetration among certain segments. Market segmentation, then,

aims to customize the program approach to specific segments that would otherwise be underserved by the program. These segments will include:

- Municipalities
- Hospitals
- Commercial Real Estate
- Commercial Kitchens
- Hospitality

### **Delivery Model**

Market segmentation will entail will take the form of marketing and initiatives targeted directly to the specific needs of each segment. This may entail some specialized research to determine what specific barriers are preventing each segment from participating in the efficiency program, and how to best reach them. The delivery model will likely vary from segment to segment, depending on what is expected to work best for each particular segment.

### **Services/Incentives Offered**

Like the delivery model, the specific services and incentive provided will depend on the specific market segment being addressed. For example, the primary barrier to efficiency in commercial real estate is typically the split incentive barrier, where the landlord pays for capital improvements but the renter pays the monthly utility bills. In this case, a program may take an approach to market and support green leases, which align the financial and energy incentives of building owners and tenants. By contrast, the primary barrier for municipalities is typically the first cost of the efficiency investment. A primary service for municipalities, then, may be financing arrangements so that there is a positive cash-flow from the first year of the efficiency project.

### **Best Practice Features**

Market segmentation reflects best practices by providing specialized approaches to marketing and delivery that suit specific market segments that would otherwise be underserved. Done correctly, market segmentation can significantly increase participation and achieve highly cost-effective savings that would otherwise go unrealized.

## SMALL BUSINESS RETROFIT

The Small Business Retrofit Program is first described on page 60 of the “Program Portfolio Design” section of the report and is one of the program strategies used to develop program potential results. The Table below summarizes the energy this type of program could save in Delaware over the 12-year study period as well as the budget required to implement the program.

### Small Business Retrofit Program Summary – Cumulative Annual Results in 2025

Electric Energy (MWh)	Electric Demand (MW)	Natural Gas (BBtu)	Petroleum Fuels (BBtu)	Total Budget 2014-2025 (Present Value Millions\$)
219,746	33	290	70	90

### Market Segment

The Small Business Retrofit program is specifically aimed at commercial buildings under a certain size threshold. Due to time and financial constraints, these customers tend to have very low participation in traditional prescriptive and custom programs. The nature of the program means that the majority of the savings will come from lighting and other easy to install measures such as boiler and pipe insulation, faucet aerators, and night covers for refrigeration. However, the installation contractor will ideally look for other more complex opportunities, such as HVAC in need of replacement or low insulation, and refer the customer to more specialized contractors for further action through prescriptive or custom incentives.

### Delivery Model

The Small Business Direct Install program begins with a free walkthrough audit of a small commercial facility. The audit is typically done by a third-party contractor who has a pre-identified list of common measures and prices that was determined at the time of bid. During the walkthrough, the contractor will identify potential efficiency measures that are applicable to the facility in question. If the customer approves of the recommended measures, the contractor will install them in the same visit, at a large discount – usually about 70% of the total installed cost. Ideally, during the audit the contractor will also be looking for efficiency opportunities that are not on the list, such as HVAC units that need replacement. These opportunities may be on the list of measures for the contractor to check, but will not have associated pricing, as a separate contractor is needed for installation. In the event that these further opportunities are identified, they will be referred to more specialized contractors, who can work with the program administrator to get prescriptive or custom incentives through one of the other programs.

### Services/Incentives Offered

The services offered through the Small Business Direct Install program consist of a free walkthrough audit, along with heavy discounts (around 70% of the full cost) for common, easy to install measures identified during the audit. A best practice implementation of the program

would also include on-bill, low/no-interest financing for the remaining 30% of the measure costs.

### **Best Practice Features**

This program greatly boosts participation among small commercial facilities, which are otherwise very underserved by traditional program offering. It combines free on-site audits with high financial incentives and easy application processes to achieve significant savings from high efficiency lighting and other easy-to-install efficiency measures. The program will ideally also include financial options such as on-bill low/no-interest financing.