

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

Shared Savings Example: Buying an Appliance

WIN – customers get high efficiency appliances for the cost of standard appliances

WIN – customers initially save \$75 a year in reduced energy bills and more than \$500 over the lifetime of the appliance

WIN – customers use Green Energy, with environmental benefits for all Delawareans

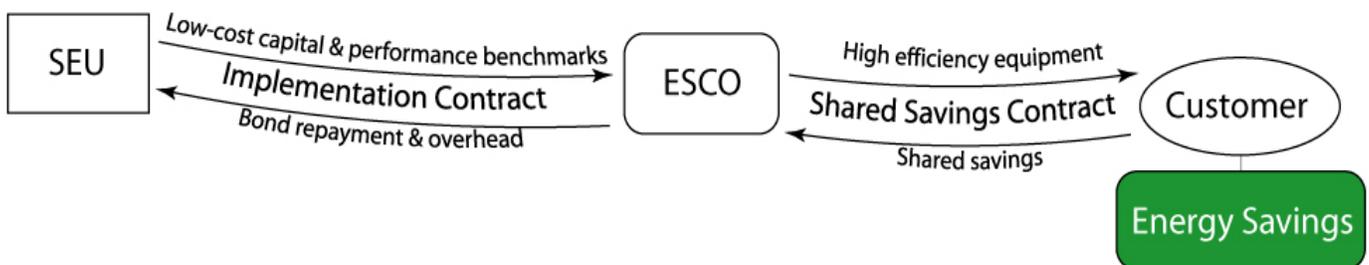
In this shared savings illustration, the SEU Contract Administrator provides incentives for efficient models of appliances and HVAC systems, such as high efficiency refrigerators, clothes washers and dryers, dishwashers, hot water boilers, air conditioners, furnaces, and windows.

Customers can make a **Green Upgrade** by retiring an old appliance five years early. The SEU will pick up the old appliance for free and help the customer select a better model. A high-efficiency appliance costs \$200 more than the conventional option. The high efficiency appliance creates annual electricity savings of 750kWh more than the retired, inefficient appliance, and 100 kWh more than a standard appliance.¹

Year	Price of Energy (\$/kWh)	Annual Savings (at 750kWh/yr for 5yrs, then 100kWh/yr)	Cumulative Savings To Customer (2/3 of Savings for first 5 yrs)	Cumulative SEU Revenue (1/3 of Savings for first 5 years)
1 – Replacement Benefit	\$0.15	\$113	\$68	\$45
5 – Upgrade Benefit	\$0.18	\$18	\$351	\$234
15			\$533	

The customer does not have to pay the extra expense of the high-efficiency appliance, and ultimately saves \$533 over the life of the new appliance². Through shared savings, the SEU recovers its initial investment for the customer plus administrative costs.

Customer – SEU Relationship



Note: This is intended as an example only. The SEU Contract Administrator is ultimately responsible for designing and implementing the programs, and has the power to set incentive levels that create the greatest benefits in terms of low-cost energy efficiency savings.

¹ For an example of potential appliance savings between old, conventional, and energy star appliances, see <http://www.homeenergy.org/consumerinfo/refrigeration2/refmods.php> and compare appliances at www.lowes.com.

² Inflation rate and discount rate are assumed to be the same in this simplified example.

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

Shared Savings Example: Renovating a Home

WIN – customers make high efficiency renovations at reduced prices

WIN – customers save \$240 a year and more than \$3,500 in reduced energy bills over the lifetime of the equipment installed for green home renovation

WIN – customers use Green Energy, with environmental benefits for all Delawareans

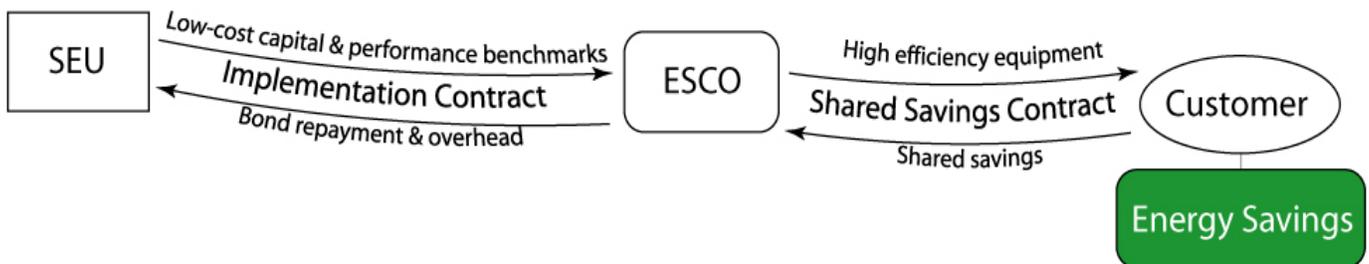
The SEU functions as a clearinghouse, providing home and business owners with a variety of sustainable energy options. An SEU energy auditor may suggest that a homeowner make several efficiency upgrades to the building, such as insulation, window replacement, weather stripping, lighting improvements, and boiler replacement. The homeowner can choose to take some or all of these actions. As with appliances, the SEU will pay for the incremental cost of the upgrades.

In this example, a homeowner chooses three home efficiency measures: air sealing, attic insulation, and switching to compact florescent lights. The measures cost \$575 and will save the homeowner \$240 each year.³

Year	Price of Energy (\$/kWh)	Annual Savings	Cumulative Customer Savings ⁴	Cumulative SEU Revenue
1	\$0.15	\$240	\$125	\$115
5	\$0.18	\$260	\$649	\$600
15	\$0.20	\$317	\$3,551	

The homeowner ultimately saves over \$3,500 in home energy costs, while the SEU recovers its costs in five years.

Customer – SEU Relationship



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³ For an example of insulation costs, see <http://www.ornl.gov/~roofs/Zip/ZipHome.html>. For other home improvement measures see the DOE website <http://www.energysavers.gov/homeowners.html>.

⁴ For weatherization, the actions have a longer payback time. The SEU Contract Administrator can decide to set the amount of savings shared with the SEU at a higher rate. This example uses 48% shared savings.

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

Shared Savings Example: Buying a Car

WIN – customers get high efficiency cars for the cost of standard cars

WIN – customers initially save \$700 a year in reduced gasoline costs and \$6,800 in 8 years

WIN – customers use Green Energy, with environmental benefits for all Delawareans

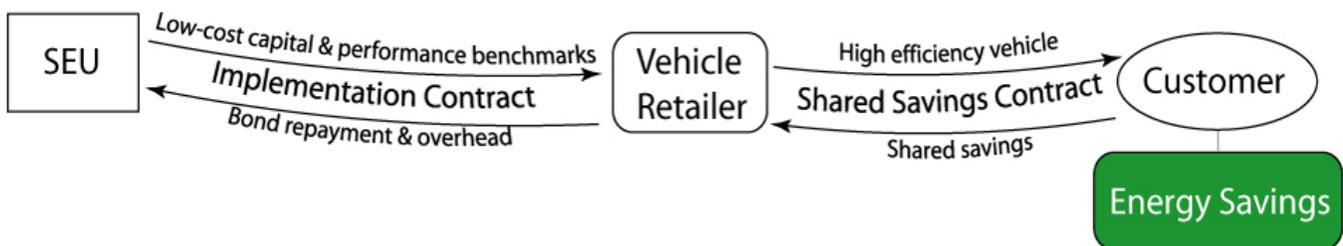
The SEU Contract Administrator could provide incentives for individuals and businesses to buy high efficiency vehicles such as hybrids.

In this example, an individual retires a conventional inefficient vehicle that gets 23 miles per gallon, and buys a new efficient hybrid that gets 48 miles per gallon. This example assumes a \$3,000 difference in sticker price between a conventional and a high efficiency car, and that the SEU Contract Administrator offers a \$1,000 incentive over and above federal incentives.⁵ If the individual drives an average of 15,000 miles each year, annual gasoline savings are worth \$1,020.

Year	Annual Savings (at \$3/gallon)	Cumulative Customer Savings	Cumulative SEU Revenue
1 – Shared Savings Benefit	\$1,020	\$680	\$340
4 – Upgrade/ Resale Benefit ⁶	\$1,020	\$2,720	\$1,360
8		\$6,800	

Through the shared-savings model, the customer saves \$6,800 in eight years of owning the car and the SEU recovers its costs for the incentive plus administrative costs.

Customer – SEU Relationship



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⁵ See http://autos.yahoo.com/green_center/ to compare different high efficiency vehicles.

⁶ A customer who owns the high efficiency car for its 8-year lifetime will save \$6,800 in fuel costs. Other customers earn these savings through a higher vehicle resale value after four years of ownership.

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

Green Financing Example: Buying an Appliance

WIN – customers get high efficiency appliances for the cost of standard appliances

WIN – customers get low-interest financing

WIN – customers save \$260- \$765 on electricity bills

WIN – customers use Green Energy, with environmental benefits for all Delawareans

Instead of shared savings, the SEU Contract Administrator may choose to use an efficient financing model for promoting high efficiency appliances. By working through an energy services company (ESCO), the SEU could offer financing for energy efficient appliances in two ways:

- Customers can make a **Green Choice** for an energy efficient model over a standard one.
- Customers can make a **Green Upgrade** by retiring an old appliance early. The SEU will pick up the old appliance for free and help the customer select a better model.

In this example, the high efficiency appliance costs \$700 and the standard appliance costs \$500. When buying the efficient appliance, the customer can choose to finance it through the SEU for only \$500 (the cost of the standard appliance) with a low interest loan.

Green Choice Energy Savings

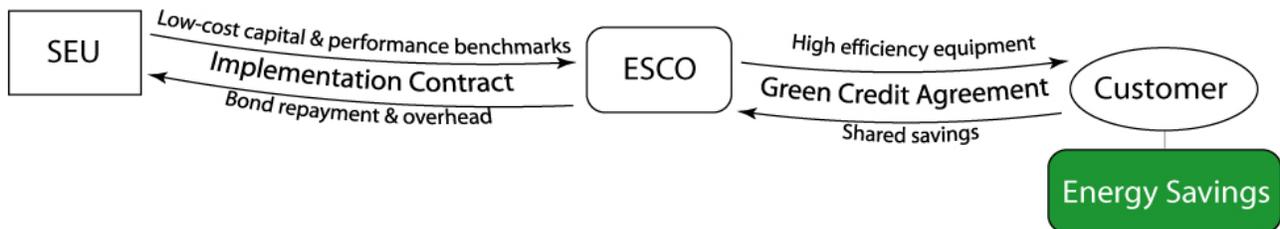
Year	Cumulative Customer Savings (at 100kWh/yr)
1	\$15
5	\$78
15	\$259

Green Upgrade Energy Savings

Year	Price of Energy (\$/kWh)	Annual Customer Savings (at 750kWh/yr for 5yrs, then 100kWh/yr)
1 – Green Upgrade	\$0.15	\$113
5 – Green choice	\$0.18	\$585
15	\$0.20	\$767

Green Choice customers save \$259 in electricity bills over the life of the appliance, while Green Upgrade customers save \$767.⁷ The SEU funds this model through a combination of bulk purchasing discounts and fees paid by the ESCO for access to low-interest SEU bond money.⁸

Customer – SEU Relationship



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⁷ Inflation rate and discount rate are assumed to be the same in this simplified example.

⁸ For an example of potential appliance savings between old, conventional, and energy star appliances, see <http://www.homeenergy.org/consumerinfo/refrigeration2/refmods.php> and compare appliances at www.lowes.com.

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

Transportation Example: Car Share Incentives

WIN – workers get convenient and inexpensive car share options

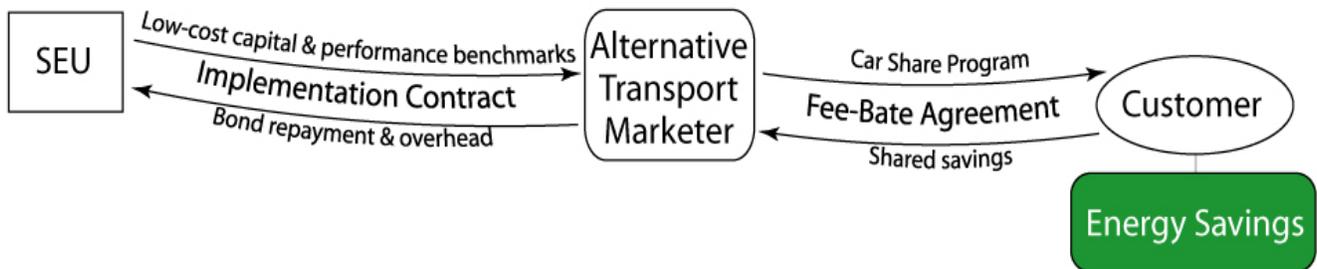
WIN – businesses save money on parking fees and transportation services

WIN – workers use Green Energy, with environmental benefits for all Delawareans

The SEU can work to promote changes in transportation use that will reduce gasoline consumption and harmful air pollution. While there are many possibilities for incentivizing efficient transportation, one possible example is given here for encouraging car sharing.

The SEU can help an urban business set up a car share program. The business currently offers a parking allowance of \$50 per month for each employee. By offering customized services and technical assistance, the SEU helps the business create a car share program with a shuttle to the nearest public transportation stop, so half the employees no longer drive to work. The business will share a portion of the savings from the reduced parking allowance costs with the SEU. Alternatively, the business can reinvest the savings into an energy efficiency or renewable energy project with the SEU.⁹

Customer – SEU Relationship



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⁹ Flexcar (www.flexcar.com) and zipcar (www.zipcar.com) are two examples businesses that develop car-share programs.

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

Shared Savings Example: Commercial/Industrial Project

WIN – customers make high efficiency renovations with no capital outlay

WIN – customer saves over \$4,600 in the first year and \$61,000 over the life of the project

WIN – ESCO is able to aggregate smaller C&I customers using low cost capital

WIN – customers use Green Energy, with environmental benefits for all Delawareans

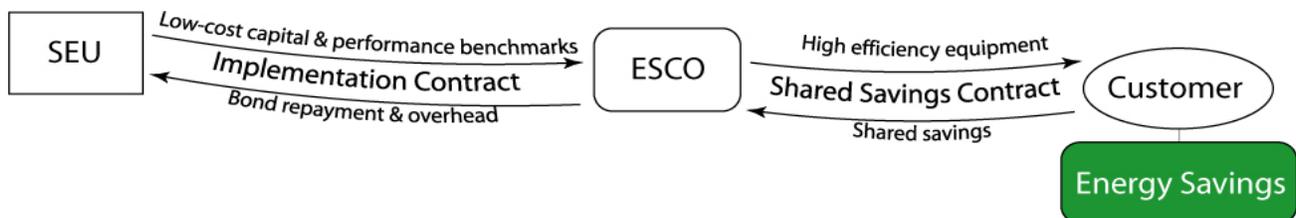
The SEU offers a low cost capital pool, which helps to leverage additional capital for a shared savings contract. Commercial/industrial projects can include lighting, HVAC, motors, process equipment, boilers, and other upgrades that reduce energy costs and improve productivity. Projects are implemented by an ESCO, requiring no capital outlay by the customer. Repayment is made through a shared savings contract between the customer and the ESCO. The SEU's costs are recovered mainly through its agreement with the ESCO (a portion of the customer's shared savings)

In this example, a building owner chooses to install high efficiency lighting. The cost of the project is \$35,000, with one-third financed by the SEU and the remainder financed by the ESCO. Both the SEU and the ESCO recover their overhead costs (assumed to be a total of 12%) through shared savings.¹⁰

Year	Annual Energy Savings (kWh)	Energy Price (\$/kWh)	Annual Energy Savings	Cumulative Total Savings	Cumulative ESCO Cost Recovery	Cumulative SEU Cost Recovery	Cumulative Customer Savings
1	92,400	\$0.1000	\$ 9,240	\$ 9,240	\$ 3,095	\$ 1,525	\$ 4,620
10	92,400	\$0.1195	\$ 11,043	\$101,175	\$ 26,264	\$ 12,936	\$ 61,522

The business owner saves over \$61,000 in operating costs with no initial capital outlay, and savings begin accumulating immediately. The SEU recovers its costs through a standard shared savings agreement already widely used in the U.S. in the commercial and industrial sector.

Customer – SEU Relationship



Note: This is intended as an example only. The SEU Contract Administrator is ultimately responsible for designing and implementing the programs, and has the power to set incentive levels that create the greatest benefits in terms of low-cost energy efficiency savings.

¹⁰ Examples of this model are commonly administered by large ESCOs like AMERESCO (www.ameresco.com) or Siemens Energy (www.siemens.com). The Clinton Climate Initiative (www.clintonfoundation.org) recently announced a \$5 billion program, similar to the above model, in partnership with major banks and ESCOs to improve commercial building efficiency in several global cities.

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

RECs Example: Solar Hot Water

WIN – customers can heat water with renewable energy at 50% off the cost of the system

WIN – customer saves over \$12,500 over the life of the system

WIN – customer can sell 75% of the RECs the system earns for an added benefit

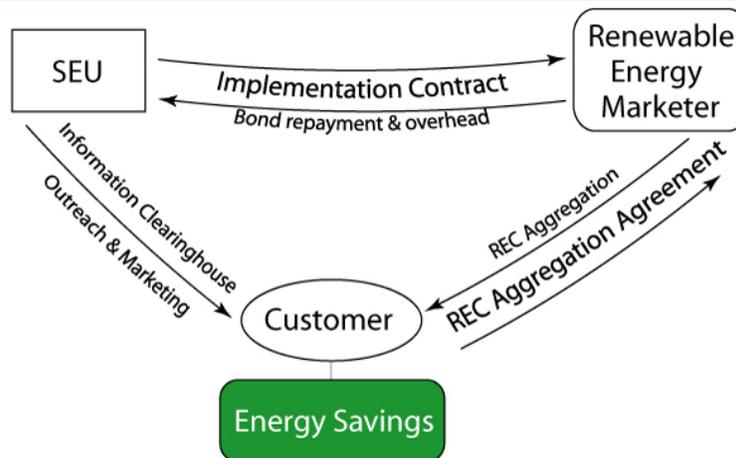
WIN – customers use Green Energy, with environmental benefits for all Delawareans

The SEU can help Delawareans heat their water with the warmth of the sun by providing incentives for solar hot water heaters and by helping residents sell the renewable energy certificates (RECs)¹¹ generated by the systems.

In this example, a solar hot water heater costs \$2,500, compared to \$350 for a conventional electric storage water heater, and will save the resident about 3,500 kWh in electricity each year.¹² Through the Green Energy Fund, the SEU will pay for half of the solar hot water system, so the customer only has to pay \$1,250. For each kilowatt-hour of electricity saved per year, the customer generates an equivalent. REC. The SEU aggregates and sells the customer's RECs into the market. The customer benefits from electricity savings plus 75% of the value of their RECs.

	Cumulative Electricity Savings (at \$0.15/kWh)	Cumulative Customer REC Earnings (75% of total)	Total Customer Benefits (savings + RECs)	SEU REC Earnings (25% of total)
Total for 20-year life of the heater	\$12,756	\$500	\$13,256	\$166

Over the 20-year life of the solar hot water heater, the resident in this example will earn \$13,500 in energy savings and receive \$500 in REC sales. The SEU recovers its investment on behalf of the customer through the REC aggregation agreement.



¹¹ Renewable energy certificates (RECs) represent the environmental benefits of renewable energy. One REC is created for every MWh of renewable energy generated. RECs are a tradable commodity, purchased by electricity suppliers to meet the requirements of Renewable Portfolio Standards or by businesses and residents who wish to support renewable energy.

¹² For more information about solar hot water see <http://www.wbdg.org/design/swheating.php>.

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

RECs Example: Solar Photovoltaics

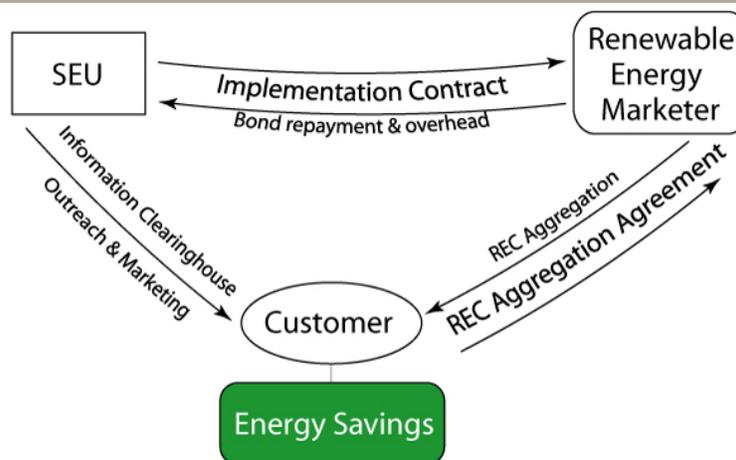
- WIN – customers can buy a renewable electricity system at 50% off
- WIN – customer saves nearly \$10,500 over the life of the system
- WIN – customer can sell 75% of the RECs the system earns for an added benefit
- WIN – customers use Green Energy, with environmental benefits for all Delawareans

The SEU can help Delawareans generate renewable electricity directly from the sun by providing incentives for solar photovoltaic systems and helping residents sell the renewable energy certificates (RECs)¹³ generated by their systems.

In this example, a moderately sized 2-kilowatt solar electric system for a home retails for \$16,000 and will generate about 2,864 kWh in electricity each year.¹⁴ Through the Green Energy Fund, the SEU will pay for half of the solar hot water system, plus the customer benefits from a \$2,000 federal tax credit so the customer only has to pay \$6,000. The customer will get the savings from the electricity plus 75% of the RECs.

	Cumulative Electricity Savings (at \$0.15/kWh)	Customer REC Earnings (75% of total)	Total Customer Benefits (savings + RECs)	SEU REC Earnings (25% of total)
Total for 25-year life of the system	\$10,438	\$5,426	\$15,864	\$1,809

Over the 25-year life of the solar photovoltaic system, the customer saves \$10,400 in electricity savings and receives nearly \$5,500 in REC sales. The SEU recovers its investment on behalf of the customer through the REC aggregation agreement.



¹³ Renewable energy certificates (RECs) represent the environmental benefits of renewable energy. One REC is created for every MWh of renewable energy generated. RECs are a tradable commodity, purchased by electricity suppliers to meet the requirements of Renewable Portfolio Standards or by businesses and residents who wish to support renewable energy.

¹⁴ For more information about solar PV, see <http://www.3rdrock.us/>, a solar installer that operates in New Jersey.

DELAWARE SUSTAINABLE ENERGY UTILITY TASK FORCE

RECs Example: Geothermal Heat Pump

WIN – customers can heat and cool their homes with renewable energy at 50% off the cost of the system

WIN – customer saves more than \$18,000 over the life of the system

WIN – customer can sell 75% of the RECs the system earns for an added benefit

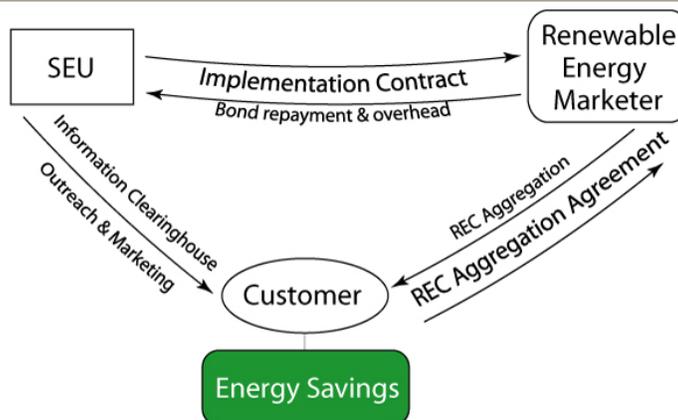
WIN – customers use Green Energy, with environmental benefits for all Delawareans

The SEU can help Delawareans heat and cool their homes with geothermal heat pumps using renewable energy by providing incentives and by helping residents sell the renewable energy certificates (RECs)¹⁵ generated by the systems.

In this example, a geothermal heat pump costs \$7,500, compared to \$4,000 for a conventional air-source heat pump, and will save the resident about 5,000 kWh in electricity each year.¹⁶ Through the Green Energy Fund, the SEU will pay for the cost difference, so the customer only has to pay \$4,000. For each kilowatt-hour of electricity saved per year, the customer generates an equivalent amount of RECs. The SEU aggregates and sells the customer's RECs into the market. The customer benefits from electricity savings plus 75% of the value of their RECs. The SEU recovers its investment on behalf of the customer through the REC aggregation agreement.

	Cumulative Electricity Savings (at \$0.15/kWh)	Cumulative Customer REC Earnings (75% of total)	Total Customer Benefits (savings + RECs)	SEU REC Earnings (25% of total)
Total for 20-year life of the heater	\$18,223	\$713	\$18,936	\$238

Over the 20-year life of the geothermal heat pump system, the resident in this example will earn nearly \$19,000 in energy savings and REC sales. The SEU recovers its investment on behalf of the customer through the REC aggregation agreement.



¹⁵ Renewable energy certificates (RECs) represent the environmental benefits of renewable energy. One REC is created for every MWh of renewable energy generated. RECs are a tradable commodity, purchased by electricity suppliers to meet the requirements of Renewable Portfolio Standards or by businesses and residents who wish to support renewable energy.

¹⁶ For more information about geothermal heat pumps see <http://energymatch.com/features/article.asp?articleid=46>.