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SOLUTION

Sustainable Oriented and Long-lasting Unique Team for energy self sufficient cOmmuNities

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ESCO ANALYSIS REPORT

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1 Summary

The intention of this document is to provide information on available island resources and identify possible fields for ESCo business development on island of Hvar. The analysis of the island resources and island energy consumption will provide a better understanding of advantages and disadvantages of a remote community in terms of supply and demand.

2 Objective of the Deliverable

The objective of the work package is to analyze the potential of ESCo operation on the island of Hvar. For that purpose, the future energy balance will be presented to point out that the island can achieve self-sufficiency. After presenting the balance, an analysis of potential ESCo fields of operation will be done along with guidelines and examples on ESCo contracts and projects from other regions.

3 Island resources

Island of Hvar has numerous natural resources available for sustainable development, but probably the most important one is considered to be the sun. Due to a high number of sunlight hours, solar technologies are very favorable on the island, however very low percentages of solar technologies are actually used. SOLUTION team has put in significant efforts to promote utilization of solar technologies on the island, both related to hot water preparation and electricity production with photovoltaic systems. Considering that there are numerous touristic and residential objects on island of Hvar, it is very clear smaller scale roof mounted PV systems will become an attractive option; however large systems for island grid stabilization should also be used. The influence of strong touristic activities is visible when observing the overall electricity consumption during summer. Those peaks coincide with the summer period when biggest yields from PV systems can be expected. Therefore, both small scale and large scale PV systems should be an obvious choice.

Wind potential is currently put aside, since Croatian regulation still forbids installation of wind turbines and wind farms further than 1 km off the mainland. Still, island of Hvar has wind potential and the possibility of exploiting that potential will arise as soon as the current legal framework is amended and installation of wind turbines is allowed on whole Croatian territory.

Biogenic resources were previously assessed in other documents/deliverables for Solution project but they will be also included in this document since ESCo fields of activity could include implementation of a bio-plant in the islands' energy system. Biogenic resources here include not only the biomass available on the island but also all other waste biogenic resources that are produced and caused by permanent population as well as the strong touristic season.

3.1 SOLAR RESOURCE

Solar resource is considered to be the most abundant resource on island of Hvar and certainly the resource that could contribute to island self-sufficiency and island sustainable development. The observed situation on the island on the start of SOLUTION project was quite surprising since a very small number of solar systems (either solar thermal or PV) was installed. The awareness on benefits of using solar energy for

everyday heating, cooling or sanitary hot water preparation was quite big. However, the skepticism towards solar technologies in combination with lack of technical knowledge resulted in implementation of very few projects on the island. The practices have changed since there are a lot of co-financing sources besides SOLUTION project providing financial assistance in implementation of solar technologies. Nevertheless, the number of installed systems is still low if the island in whole is observed.

Since the solar technology market is quite underdeveloped there are still many opportunities for implementation of ESCo projects, first of all in the touristic sector (mainly hotels and large apartment buildings).

If some standard figures are presumed, especially in the touristic sector, one can easily obtain an approximate figure for self-sufficient island (community, building, and apartment) governance. Such analysis should provide the guidelines for future development of all public and private sectors on the island.

3.2 BIOGENIC RESOURCES

The biogenic resources on the island have significantly increased in amount due to changing climate and provided the opportunity for island residents to use the freely available biomass for energy purposes. Residents are still using large amounts of biomass for heating and sanitary hot water preparation purposes but the majority of used furnaces and boilers are very old and inefficient. This causes significantly lower resource efficiency and lower amount of energy delivered in the system and of course bigger amount of biomass needed for the same amount of energy. Considering that modern practices include preparation of biomass fuel in other additionally processed and refined forms it is obvious that exploitation of biomass resources on the island is inefficient and must be modernized.

3.3 WASTE RESOURCES

Waste resources can present a hazard on the island since for instance waste oil from restaurants, hotels and other catering businesses is improperly disposed. But the waste oil is only a small fragment since agricultural products present the majority of island's production. Agricultural activities such as grape growing and olive growing produce a lot of biogenic waste which was sometimes thrown into the sea causing a hazard and pollution of the local coastline. Due to unfamiliarity with the technological advancements in the last decade, the waste producers have not envisaged biogenic waste exploitation for energy production, whether it is electricity or thermal/cooling energy.

3.4 OTHER

Since Hvar is an island, it is obvious that there is also potential for tidal power exploitation but appropriate technologies and locations should be further investigated. One of the possible solutions is that islands should focus on wind energy since the disturbances caused by the terrain are by far lower than on the mainland. Desalination also presents itself as an option, especially if considering that a lot of water is supplied from other sources away from the island.

The possibility of installing hydro power plants is limited to small hydro since there are no natural surface water flows on the island. The only option of implementing such projects appears within the Hvar Water works infrastructure where the company could install small pipe turbines in order to stabilize and balance the water supply network and to reduce the pressure in the pipes.

4 Analysis of the island energy system

The island is also connected to the mainland grid with an underwater cable and is very dependent on the import from mainland. Energy infrastructure on the island is in very bad condition and frequent grid failures are expected throughout the year. The causes for such occurrences have been high peak consumption, deterioration of infrastructure due to climate influence, etc.

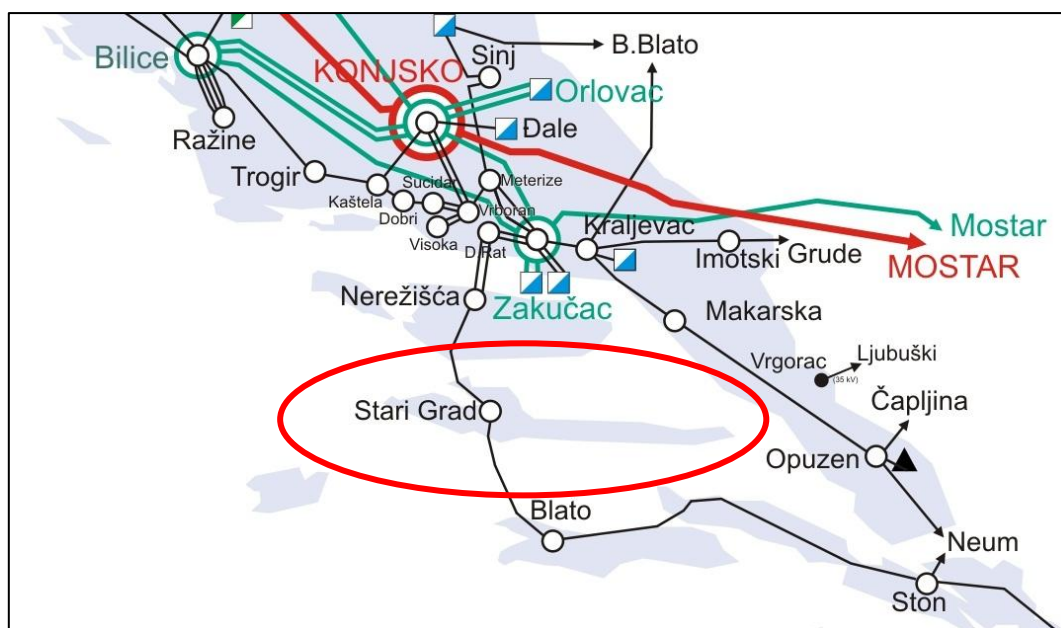


Figure 1. Island of Hvar connection to the mainland electricity grid (Source: HEP)

The island is connected to the mainland grid with one 110 kV cable through island of Brač (link D.Rat – Nerežišća (Brač) – Stari Grad (Hvar)). The connection infrastructure is very old and unreliable, therefore Croatian utility company HEP is making plans for infrastructure renovation in the period between 2012-2015.

The current energy infrastructure on the island does not have sufficient capacity to cover the summer peak loads. Electricity outages are a common occurrence; therefore the County and island administration should seek ways to implement distributed energy sources which could stabilize the situation in terms of electricity supply. The island does not have other energy infrastructure, such as oil or gas transport pipelines and everything is transported with locally available transport, mostly ferries.

5 Energy balance of the island

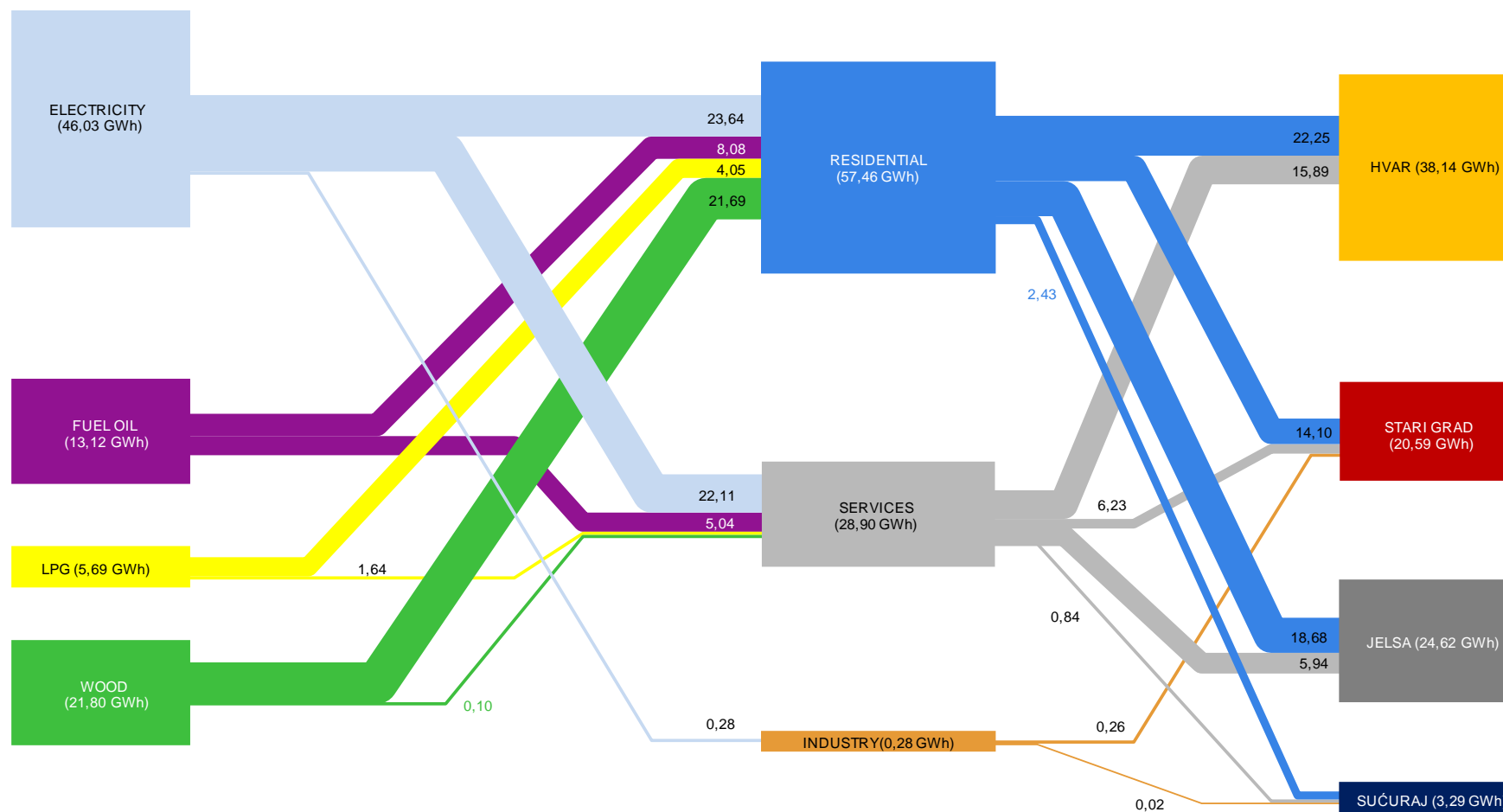


Figure 2. Energy balance of the island of Hvar (iC)

6 Future energy consumption of the island ^{*iC}

As always, exact figures of energy consumption of a community (county, region, state) cannot be projected in a simple manner since there are simply too many factors to consider. However, projections of energy consumption are prepared since much more care is given to energy planning and sustainable community development. In such cases, perhaps the easiest way is to observe the community in a simplified way by imagining an enclosed system with incoming and/or outgoing flows. Such model always includes certain limitations, as well as possibly incorrect assumptions related to system properties and system dynamics. Nevertheless, preparing projections of energy consumption certainly gives a better insight on how to achieve desired goals. Since communities will not be able to rely on a single energy source, it is useful to have a possibility to determine optimal energy source mix and the needs for energy storage. The desire to achieve self-sufficiency and sustainable development of a community will certainly require the planning process which will guide the development in the right direction.

Therefore iC adjusted the data to a model and simulated future scenarios. The results of calculations are the basis for considerations for energy solution for Hvar Island.

6.1 APPROACH – METHODOLOGY

The approach in this deliverable is based on the analysis of the data obtained from relevant institutions and modeling with an appropriate tool (EnergyPLAN). The base year data presented in Chapter 5 of this document was modeled up to 2030 in order to obtain annual data for each relevant variable, i.e. electricity consumption, heating consumption and cooling consumption. Each of the results includes certain assumptions which were the limiting factor in the analysis.

The energy for heating was calculated using total residential area for heating, permanent island population in the taken period and the average energy consumption per unit of area. It should be mentioned that the starting average figure of heating energy is relatively low because both residential and touristic areas were taken into consideration while calculating. The actual figure is significantly higher but it cannot be precisely calculated. The energy used for cooling was approximated with the electricity demand curve in order to obtain the exact figure for the base year.

The future amounts of electricity, heating energy and cooling energy consumption were calculated with EnergyPLAN model which allows the user to perform examinations related to balancing the supply and demand with a 100% renewable system. One is allowed to exactly model the heating and cooling systems, energy production systems and storage solutions. The calculations are performed on an hourly basis and finally displayed in an accumulated annual amount which is far better to compare the input values and the results.

The EnergyPLAN model requires data on:

- hourly distribution of the electricity demand
- hourly values of electricity production potential from wind
- hourly values of solar radiation
- hourly variations in heating energy demand
- hourly variations in cooling energy demand

EnergyPLAN allows the user to include a variety of different energy production and energy storage technologies. The biggest advantage of this tool is that one can assess the impact of each technology separately. Since remote communities have significant problems with energy supply, it is useful to combine multiple different energy sources in order to achieve balance in the electricity grid and improve security of supply. At this point, it is already obvious that self-sufficiency and sustainability cannot be achieved without incorporating energy storage technologies in order to meet the always changing energy demand. This provides an opportunity to observe the island system as an isolated system which meets the overall energy demand in every hour of the observed timeline.

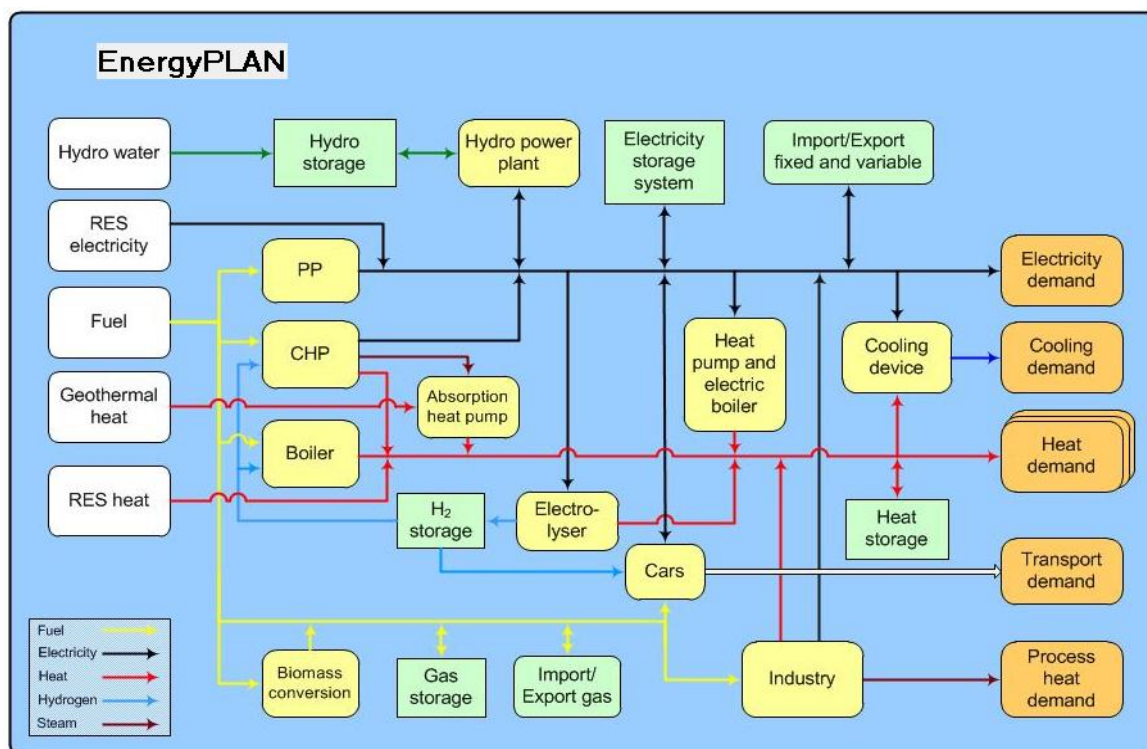


Figure 3. EnergyPLAN model (Source: <http://energy.plan.aau.dk/>)

Nevertheless, self-sufficiency and sustainable development cannot be achieved without taking special care on energy management and consumption.

6.2 INPUT DATA

6.2.1 Electricity

The electricity consumption profile according to hourly values was taken from a model prepared for another Croatian island. Such profile is expected to properly assign hourly values for electricity demand since most Croatian islands have similar "operation", i.e. electricity peaks during summer season and relatively constant hourly values outside the touristic season.

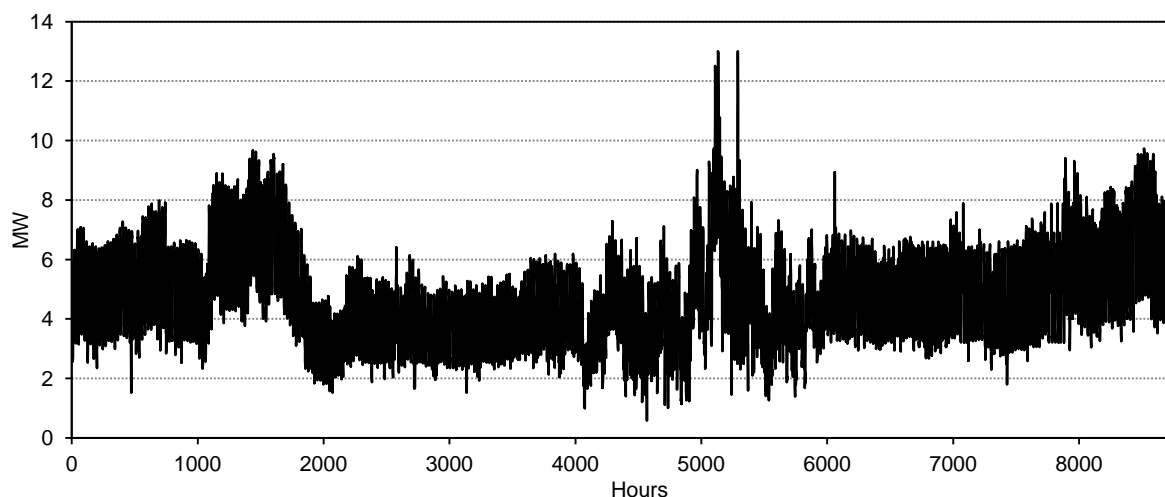


Figure 4. Electricity demand distribution (Source: calculation iC)

The consumption profile (distributed according to percentage of total annual consumption) was taken and applied to the total amount of electricity demand for island of Hvar in 2011 according to received data from Energy Institute Hrvoje Požar. The cooling energy demand, as it will be shown later was deducted from the total electricity demand.

6.2.2 Heating demand

The heating demand consumption profile was prepared according to hourly values of heating degree days. The heating degree days were then distributed and divided with the figure of total degree days (approximately 967 degree days for island of Hvar) to obtain percentages.

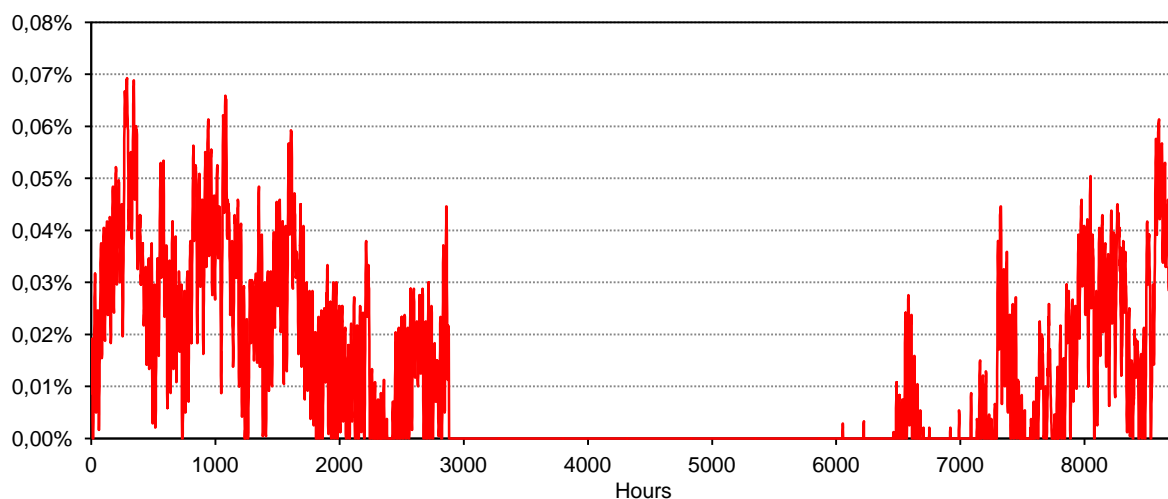


Figure 5. Heating energy demand distribution (Source: calculation iC)

When multiplied with the total figure of heating energy demand, the obtained hourly percentages provide exact hourly values of the heating energy demand. As it can be seen from Figure 5, the distribution should provide trustworthy results since it is derived from heating degree days.

6.2.3 Cooling demand

The cooling demand distribution was a bit more complicated to calculate since cooling devices use electricity and with the current level of energy management and monitoring it is not possible to track electricity consumption according to consumer activity (heating, cooling, lighting, etc.). Therefore, the cooling energy demand had to be calculated from electricity demand by taking into account the percentage of electricity demand used for cooling purposes. As provided in the input dataset from Hrvoje Požar, electricity demand was divided into three sectors - residential, industry and services. The electricity demand for industrial purposes is negligible and has approximately the same profile as the residential sector so it was added to the residential sector electricity demand.

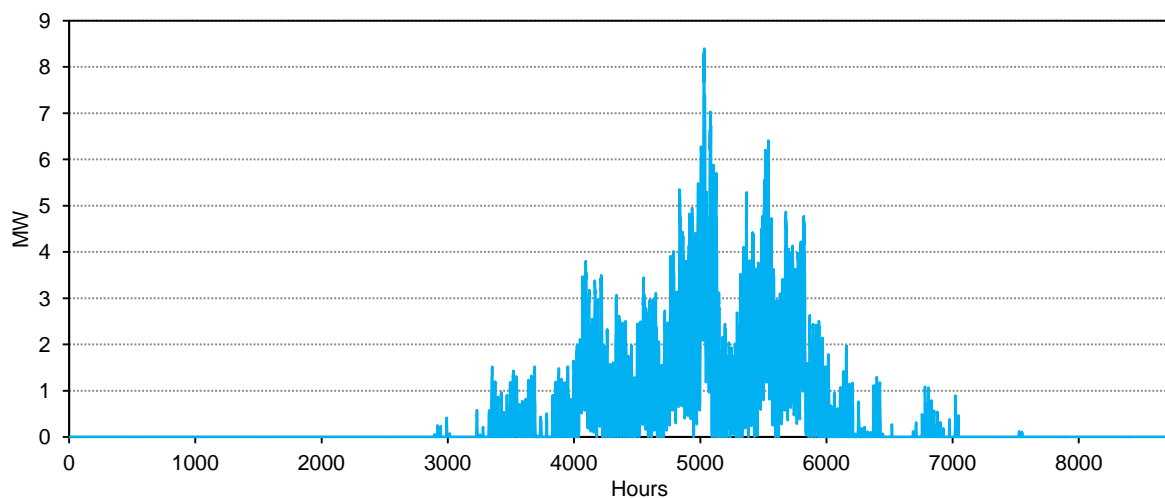


Figure 6. Cooling energy demand distribution (Source: calculation iC)

The cooling energy demand was then calculated as:

$$E_{COOL} = (E_{EL,RES} + E_{EL,IND}) * 0,1 + E_{EL,SER} * 0,8$$

Where E_{COOL} represents the total cooling energy demand, $E_{EL,RES}$ represents the electricity demand in residential sector, $E_{EL,IND}$ represents the electricity demand in the industrial sector and $E_{EL,SER}$ represents the electricity demand in the services sector. The services sector incorporates the energy consumption of mostly touristic consumers; therefore the majority of consumption, to be more exact 80%, was taken as the cooling energy consumption. The residential sector was considered differently, with only 10% of total electricity consumption of the sector being the cooling energy requirement. The obtained total figure of cooling energy demand was distributed to hourly values according to obtained cooling degree days. The hourly percentages for cooling energy demand were obtained by dividing the hourly values of cooling degree days with the total amount of cooling degree days (approximately 390 cooling degree days for Hvar). The total cooling energy demand was then distributed according to the hourly percentages to obtain hourly cooling energy demand values. As presented in Figure 6, the hourly values of cooling energy demand correspond to summer peak periods.

6.2.4 PV electricity production

The PV electricity production was calculated with hourly values of global radiation on the horizontal plane and hourly values of global radiation on the tilted plane. The radiation data was taken from Meteonorm software for island of Hvar. In order to prepare proper data for input into EnergyPLAN, it is necessary to calculate the figures of energy production for the taken PV technology which depends on the user's choice. In this case, the PV system was considered to have an efficiency of 11% (considering the module efficiency of 14%, reduced by the efficiency of all other system components). The PV system was considered to have the rated power of 1 MW_p and to take up 0,7143 ha of appropriate area.

The PV yield from global radiation on horizontal plane was then calculated as:

$$E_{PV,H} = I_{R,H} * A * \eta_{SYS}$$

Where $E_{PV,H}$ represents the hourly value of PV energy yield from the system, $I_{R,H}$ represents the hourly value of global radiation on horizontal plane, A represents the total area necessary for the PV system (0,7143 ha) and η_{SYS} represents the total system efficiency (11%).

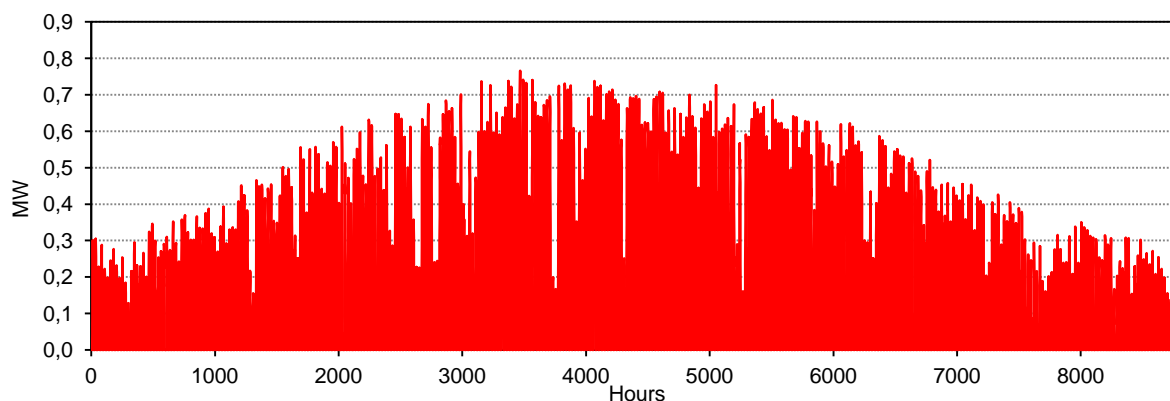


Figure 7. PV yield from global radiation on horizontal plane (Source: calculation iC)

Upon obtaining the values for the global radiation on horizontal plane, it is necessary to calculate the same PV energy yield for the global radiation on tilted plane. The PV yield for global radiation on tilted plane was calculated with the same PV system parameters as for the PV yield for global radiation on horizontal plane. The hourly values of the PV energy yield were calculated according to:

$$E_{PV,T} = I_{R,T} * A * \eta_{SYS}$$

Where $E_{PV,T}$ represents the hourly value of PV energy yield from the system, $I_{R,T}$ represents the hourly value of global radiation on tilted plane, A represents the total area necessary for the PV system (0,7143 ha) and η_{SYS} represents the total system efficiency (11%).

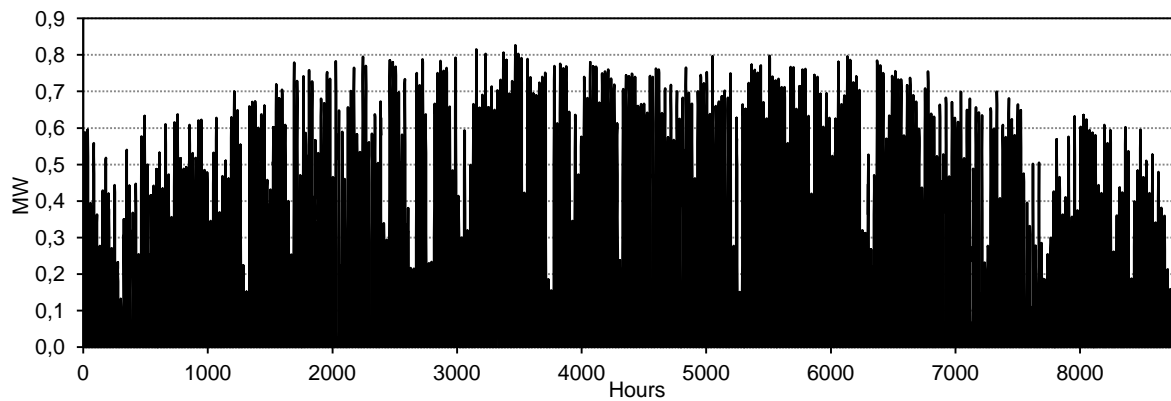


Figure 8. PV yield from global radiation on tilted plane (Source: calculation iC)

The reason for calculating both PV energy yields (horizontal plane and tilted plane) is to obtain the mean value of both. This average provides a better reference calculation value since the values for global radiation both overestimated and underestimated.

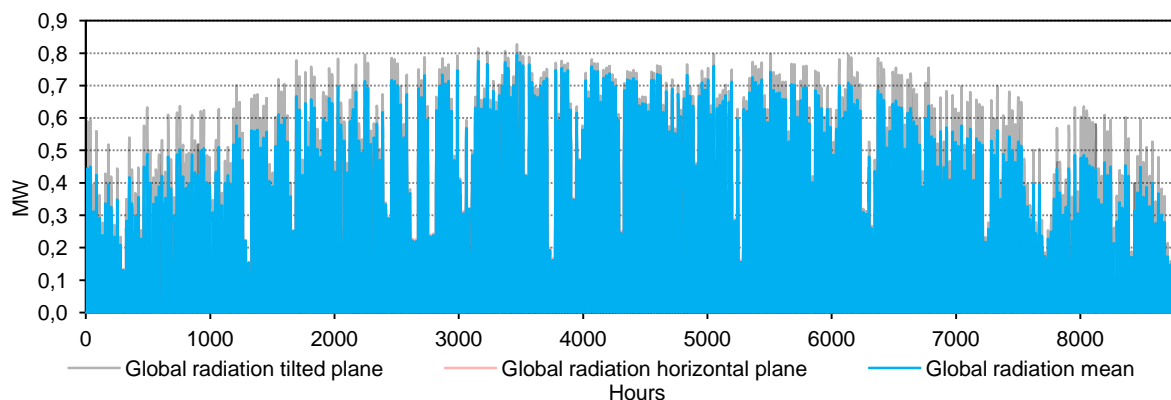


Figure 9. PV yield from global radiation mean value horizontal plane and tilted plane (Source: calculation iC)

As presented on Figure 9, the peak production value of the taken PV system is around 0,8 MW_p. It can also be noticed that the electricity production values also remain high during winter/fall period which is expected on the island of Hvar. When this distribution curve is inserted into EnergyPLAN, the produced energy depends on the actual planned PV system size, i.e. if a system of 0,1 MW_p is chosen, then the hourly energy production values obtained for 1 MW_p system are multiplied with the chosen system power.

6.2.5 Solar thermal energy production

Solar thermal system energy production was also calculated with global radiation on horizontal plane and global radiation on tilted plane, same as in the PV yield. The solar thermal system was calculated with different values for system efficiency of 66% (considering the collector efficiency of 80% reduced by losses in other system components). The solar thermal system was considered to have the rated power of 1 MW and to take up 0,1429 ha of appropriate area. The energy production with the global radiation on horizontal plane was calculated as:

$$E_{Tsol,H} = I_{R,H} * A * \eta_{SYS}$$

Where $E_{Tsol,H}$ represents the hourly value of solar thermal energy yield from the system, $I_{R,H}$ represents the hourly value of global radiation on horizontal plane, A represents the total area necessary for the solar thermal system (0,1429 ha) and η_{SYS} represents the total system efficiency (66%).

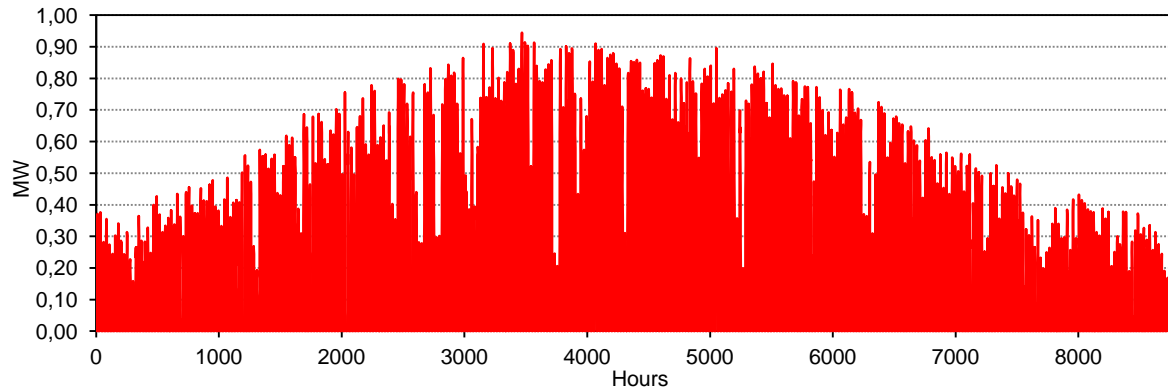


Figure 10. Solar thermal system yield from global radiation on horizontal plane (Source: calculation iC)

Upon obtaining the values for the global radiation on horizontal plane, it is necessary to calculate the same solar thermal energy yield for the global radiation on tilted plane. The solar thermal yield for global radiation on tilted plane was calculated with the same solar thermal system parameters as for the solar thermal yield for global radiation on horizontal plane. The hourly values of the solar thermal energy yield were calculated according to:

$$E_{Tsol,T} = I_{R,T} * A * \eta_{SYS}$$

Where $E_{Tsol,T}$ represents the hourly value of solar thermal energy yield from the system, $I_{R,T}$ represents the hourly value of global radiation on tilted plane, A represents the total area necessary for the solar thermal system (0,1429 ha) and η_{SYS} represents the total system efficiency (66%).

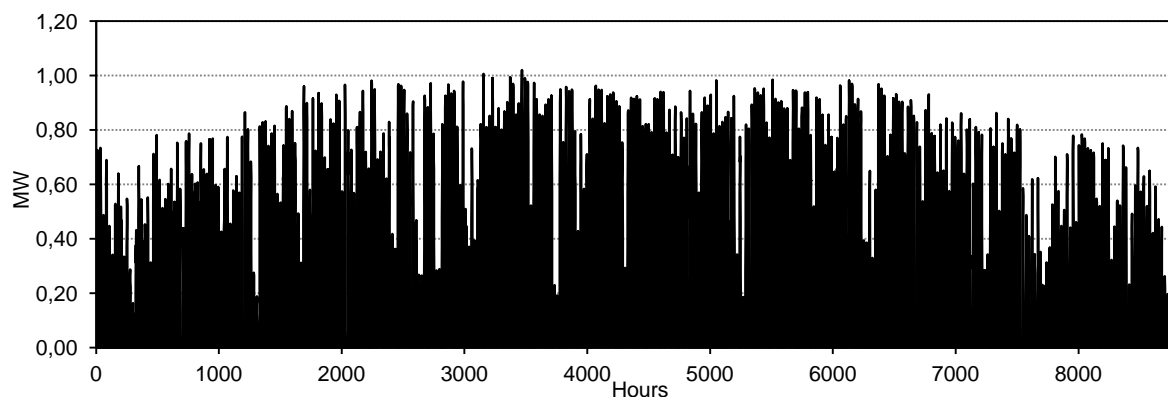


Figure 11. Solar thermal system yield from global radiation on tilted plane (Source: calculation iC)

Same as in the case for the PV yield calculation, the mean value of solar thermal system yield for global radiation on horizontal plane and global radiation on tilted plane was calculated in order to obtain the hourly values for input into EnergyPLAN tool.

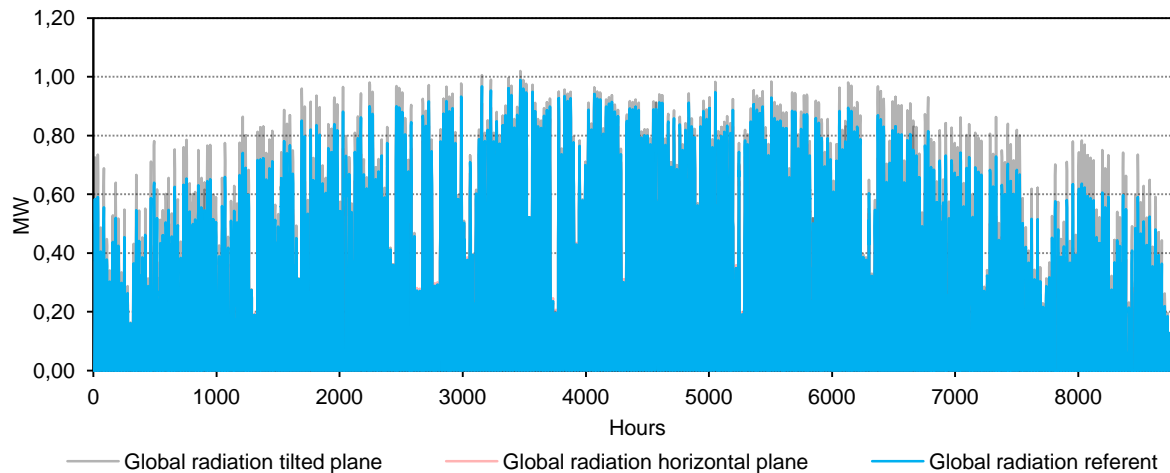


Figure 12. Solar thermal system yield from global radiation mean value horizontal plane and tilted plane (Source: calculation iC)

It can also be noticed that the thermal energy production values also remain high during winter/fall period which is expected on the island of Hvar and very appropriate for supporting the heating system. When this distribution curve is inserted into EnergyPLAN, the produced energy depends on the actual planned solar thermal system size, i.e. if a system of 0,1 MW is chosen, then the hourly energy production values obtained for 1 MW system are multiplied with the chosen system power.

6.2.6 Wind energy production

The wind speed distribution values were also obtained from Meteonorm software in order to calculate the taken wind turbine yield for given conditions.

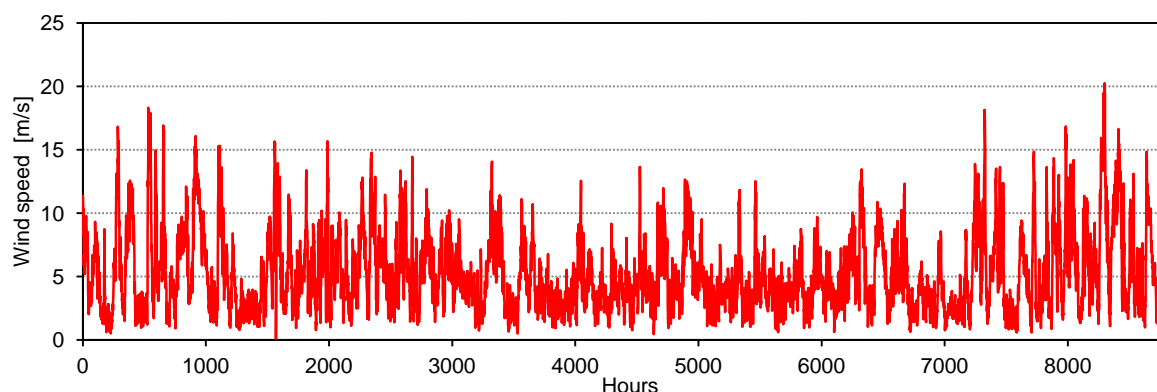


Figure 13. Wind speed distribution (Source: Meteonorm)

The chosen turbine is Alstom ECO with a publicly available power curve used to calculate the electricity production values.

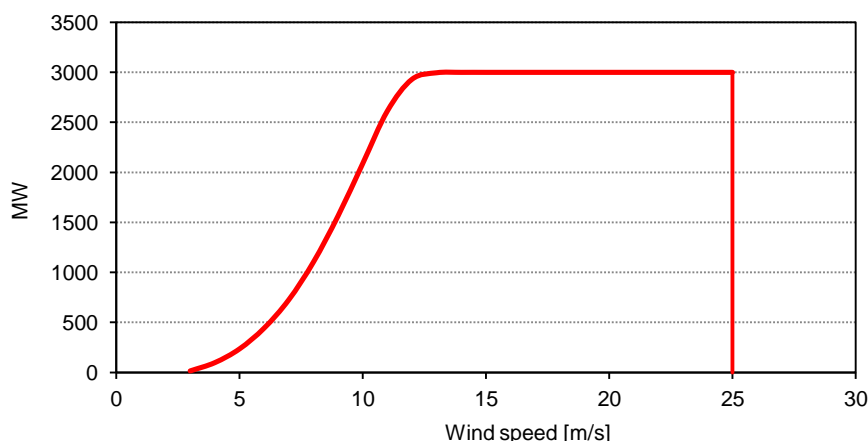


Figure 14. Alstom ECO wind turbine power curve (Source: Alstom)

In order to calculate the hourly values of wind turbine production, each value of wind speed was compared to the values for the turbine power curve and corresponding power values were assigned for the matching wind speed in Figure 14.

According to the laid out methodology, the hourly production values throughout the year were obtained.

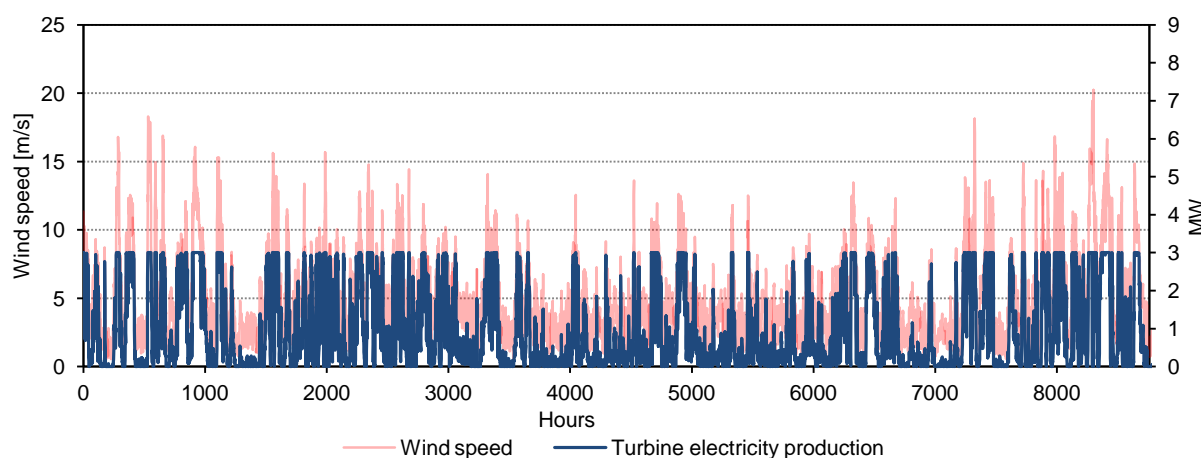


Figure 15. Wind turbine (3 MW) electricity production (Source: calculation iC)

As visible from Figure 15, the wind turbine was assumed to have 3 MW rated power. When this distribution curve is inserted into EnergyPLAN, the produced energy depends on the actual planned wind turbine(s) size, i.e. if a turbine of 0,1 MW is chosen, then the hourly energy production values obtained for 3 MW system are multiplied with the chosen system power.

6.3 BUSINESS AS USUAL

The Business-as-usual (BAU) scenario considers "normal" activities which do not significantly influence the change in energy consumption patterns. This scenario does not

envisage the implementation of energy efficiency measures according to EU Directives and clearly displays that the notion of self-sufficiency is closely related to reductions in energy consumption as well as implementation of renewable energy sources.

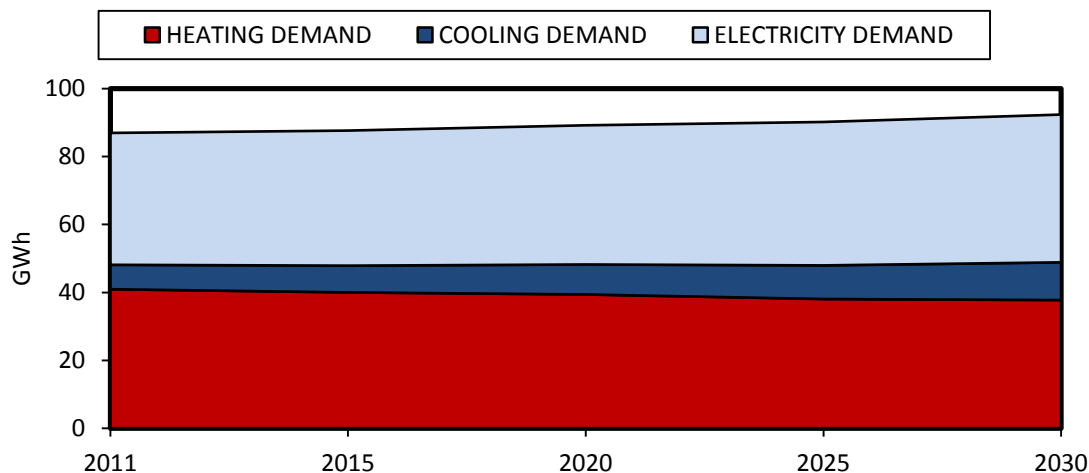


Figure 16. Display of heating, cooling and electricity consumption (Source: calculation iC)

The available power of installed renewable energy sources is envisaged to increase:

- WIND – 0,1 MW in 2015 to 1,5 MW in 2030
- PHOTOVOLTAICS – 50 kW in 2020 to almost 0,5 MW in 2030

As visible, the amounts of installed renewable energy sources capacities are very low and do not rise up to the potential. In this scenario, the energy storage technologies are not necessary since the energy consumption does not fall below the necessary threshold. The "import" of electricity from the mainland grid is still high and accounts for 93% of the electricity demand.

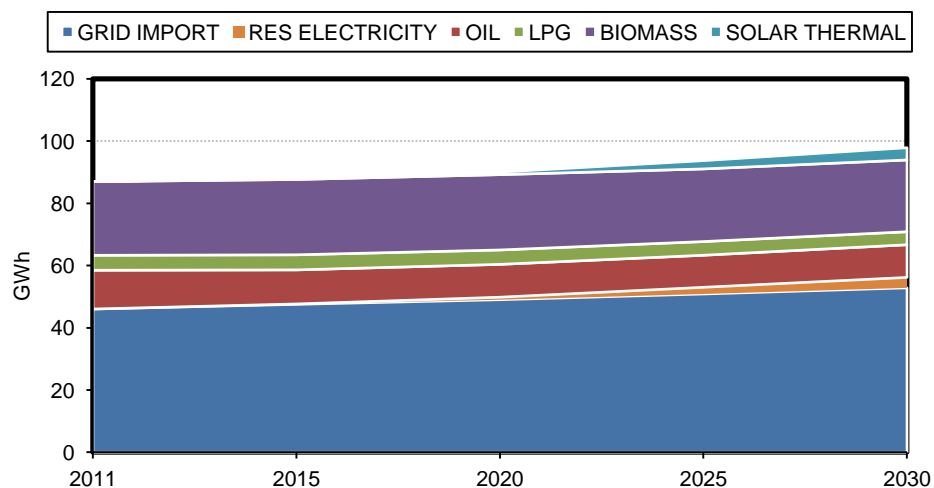


Figure 17. Display of primary energy consumption (2011-2030) in scenario BAU (Source: calculation iC)

According to the presented scenario ("BAU") and the presented assumptions, the island will not become self-sufficient nor will there be sustainable use of the resources. The use

of fossil fuels (oil and LPG) is still rather high and approximately remains on the same level throughout the observed period. Biomass and solar thermal as energy sources contribute in a slightly higher amount in 2030 than in referent year 2011.

6.4 SCENARIO 1 - PV

This scenario envisages significant decrease in energy consumption. The impact in energy efficiency measures is evident in the decrease in heating energy demand this scenario. While modeling the heating energy demand, the EU standards were taken into consideration. For instance, the starting average figure of heating energy consumption ($68 \text{ kWh/m}^2\text{a}$) decreases linearly to achieve the low energy standard in 2018 and the passive house standard in 2020 ($15 \text{ kWh/m}^2\text{a}$). Further cooling energy consumption was modeled to reduce more and more due to energy efficiency measures. As expected, the applied energy efficiency measures don't have such a large impact on the decrease of the average cooling energy consumption per unit of area. Electricity was modeled with taking into consideration the application of highly energy efficient appliances and devices.

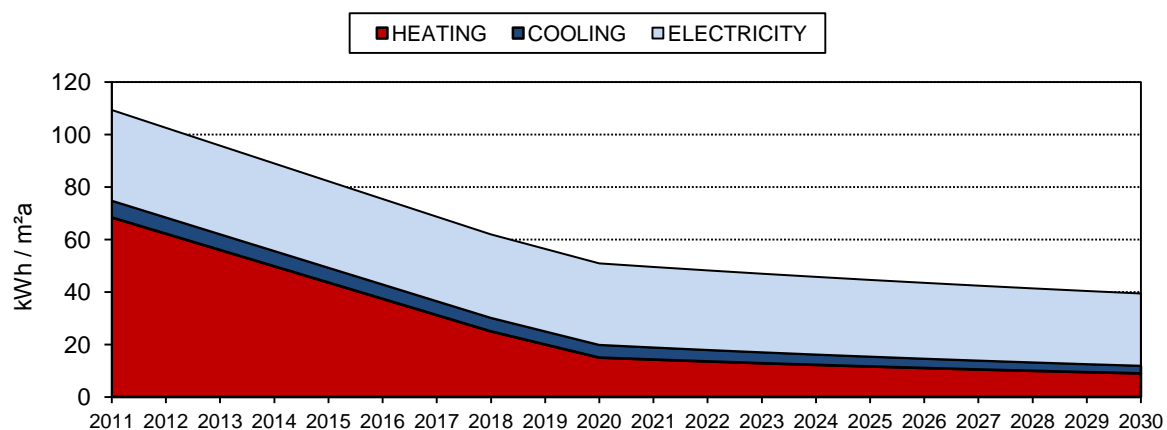


Figure 18. Display of electricity, heating and cooling energy consumption in the period 2011-2030 (Source: calculation iC)

The heating energy demand is planned to be completely covered with biomass, efficient heat pumps and solar thermal systems as an auxiliary solution. The primary energy demand for heating will significantly decrease due to energy efficiency measures (thermal protection of buildings) and replacement of the existing heating systems as mentioned.

The cooling energy demand will also decrease by almost 36% in 2030 in comparison to 2011. Electricity demand which incorporates the majority of energy for heating, cooling and appliances will also decrease by almost 27% in 2030 in comparison to 2011.

Also, it is envisaged that the electricity demand is completely covered with a PV system without the mainland grid "import" in 2030. Having that condition set, it is obvious that the system must include an energy storage solution which will be later shown as far too large.

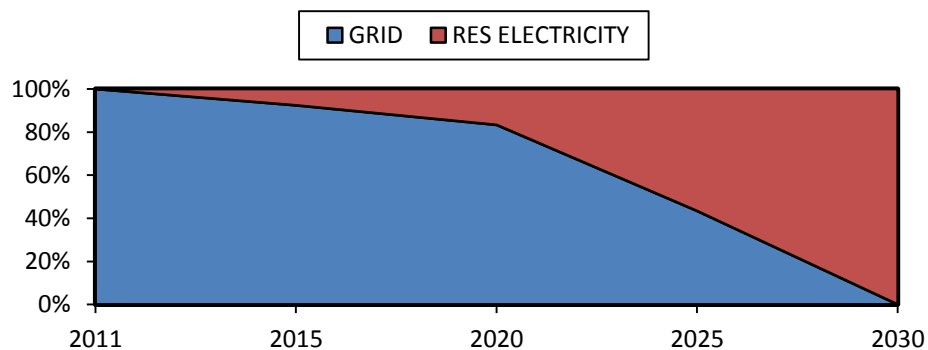


Figure 19. Display of installed PV electricity contribution (2011-2030) - (Source: calculation iC)

The installed capacity of PV in 2030 reaches 38 MW which is quite a large figure with energy storage 7.4 GWh of necessary capacity. The reason behind such an excessive capacity of the energy storage is the intermittence of the energy production source. Although the island of Hvar has the biggest potential to excel in PV systems and production of energy from PV, this outcome would require very profound energy management.

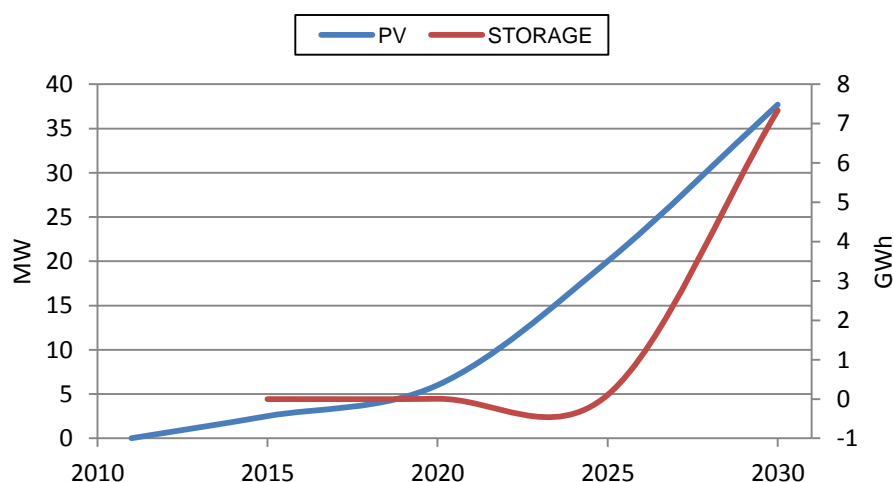


Figure 20. Comparison of installed PV power and necessary energy storage capacity (Source: calculation iC)

The installed PV capacity is sufficient to cover the complete electricity demand according to the assumptions taken into account but the necessary storage size sharply rises after 2025 when approximately 20 MW of PV is installed. The reason behind this sharp growth of energy storage size is that the electricity supply from PV surpasses the electricity demand in given moments. At the same time, PV doesn't produce electricity during the night or cloudy days so the energy storage must be large enough to cover the electricity consumption during night and cloudy days.

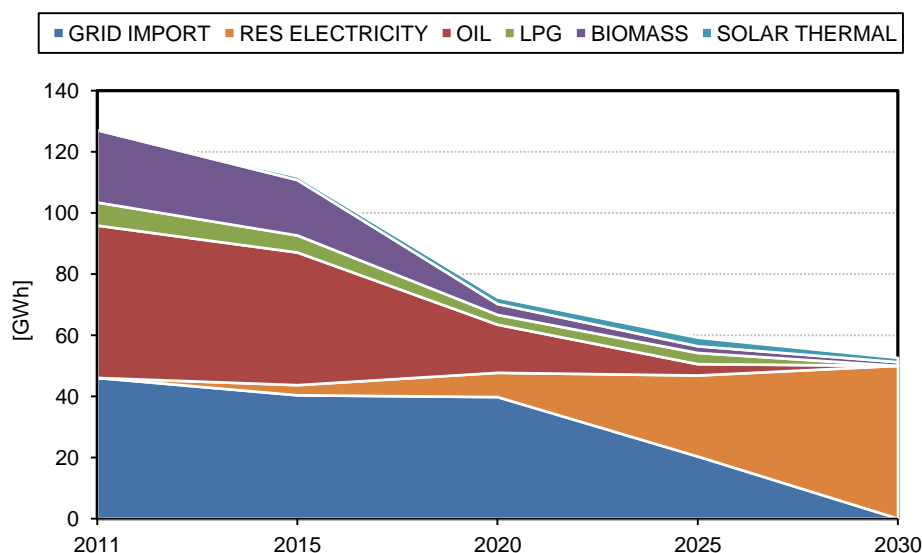


Figure 21. Primary energy consumption in scenario 1 – PV (Source: calculation iC)

The given presentation of primary energy consumption envisages that all heating systems switch to electricity or biomass (with support from solar thermal systems) from fossil fuels. In combination with the energy efficiency measures, the overall primary energy consumption should meet the distribution as presented in Figure 21 where the complete electricity demand is covered with production from PV technologies.

6.5 SCENARIO 2 - WIND

This scenario envisages the same conditions in modeling the energy demand as the previous scenario. The primary energy consumption in this scenario is also the same as in scenario 1 – PV in terms of energy demand. The difference is that the complete electricity demand is to be covered with installed wind turbines.

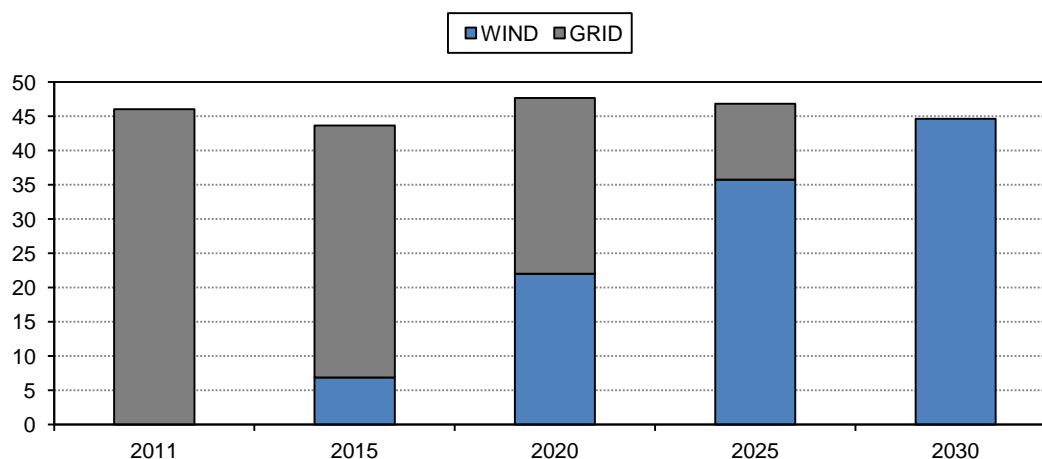


Figure 22. Electricity supply 2011-2030 (Source: calculation iC)

Figure 22 displays the amounts of electricity to be imported from the grid versus the amount of electricity produced by the installed wind system. The necessary wind turbines capacity to cover the electricity demand of the whole island in 2030 is around 17,5 MW with an energy storage of more than 7 GWh. The problem occurs in the last period where

the installed wind power doesn't grow significantly but the storage size increases to cover the remaining electricity consumption, however small it may be.

The energy storage capacity is quite similar to the one in Scenario 1 – PV. However, the ratio of installed capacities of wind and the installed power of PV in Scenario 1 are related to each other as 1:2. This confirms the assumption that it is necessary to install a PV system of approximately double power in comparison to the wind system to cover the electricity demand.

The necessary capacity of the energy storage, similar to the case in Scenario 1 – PV, starts sharply rising at around 2025 when the wind turbines production surpasses the actual electricity demand on an hourly basis. The energy storage capacity is also dependent on the concurrent variations in the supply and demand curves which are hard to achieve because of the intermittent characteristics of the wind. For instance, if the wind is blowing and the production of electricity is at that moment at its peak, and the electricity demand is low, there is no other way to preserve the produced energy but to store it and also vice versa – if there is no electricity production and there is an electricity demand, the electricity will be supplied from the energy storage.

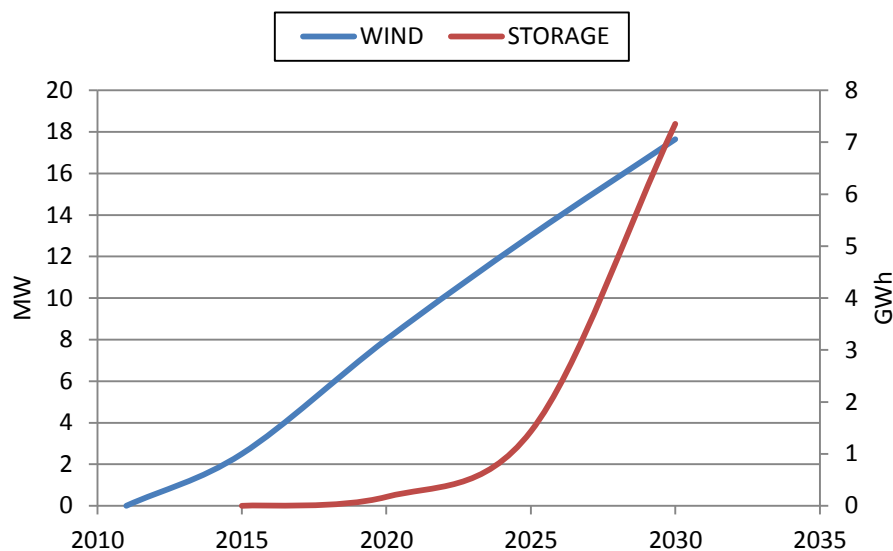


Figure 23. Comparison of installed wind power and necessary energy storage capacity (Source: calculation iC)

6.6 SCENARIO 3 – PV & WIND

This scenario envisages the same conditions in modeling the energy demand as the previous scenarios. The primary energy consumption in this scenario is also the same as in scenario 1 – PV and scenario 2 – Wind. The only difference is that the complete electricity demand is to be covered with the optimal mix of installed PV and wind turbines.

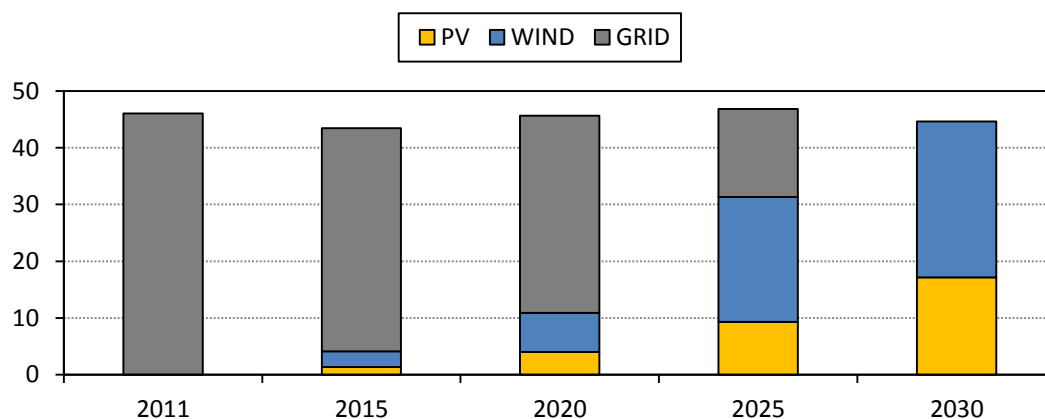


Figure 24. Electricity supply 2011-2030 (Source: calculation iC)

The optimal solution and mix of wind and PV capacity should be obtained through a chosen optimization criterion. That criterion is in this case the energy storage capacity. The actual reason behind this strategy is that both wind and PV technologies take up a certain amount of space and the energy storage does as well. The most effective way to ensure a stable electricity supply and use the precious island surface is to keep the energy storage (it takes up the largest surface) as small as possible.

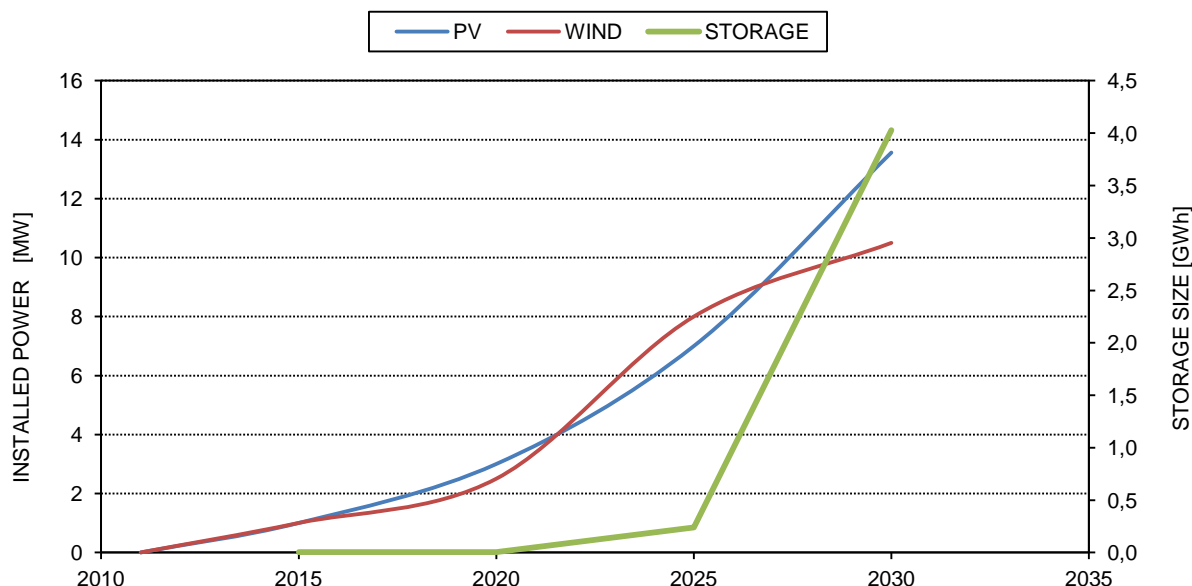


Figure 25. Comparison of installed wind power, PV power and necessary energy storage capacity (Source: calculation iC)

The wind turbines take up a large area, however smaller than the PV systems. The optimizing was done iteratively so that the wind capacity and PV power were balanced in a way which ensured constant and as large as possible electricity supply directly without the energy storage. Then, the excess produced energy which will be later used was let to go into the energy storage and the necessary minimal capacity was calculated.

It was proven that only one renewable electricity production (either wind or PV) technology cannot efficiently cover the electricity demand and have a relatively small energy storage capacity. As previously presented, scenario 1 requires approximately 38 MW of PV and an energy storage with 7 GWh capacity whereas the wind scenario requires approximately 17,5 MW of wind turbine power and approximately the same energy storage capacity. The mixture of both renewable energy production technologies (scenario 3), wind and PV, require smaller capacity of both wind and PV technologies, 13,5 MW and 10,5 MW respectively. By implementing a mixture of two renewable energy sources, it can be expected that the demand curve is covered more efficiently, thus the necessary energy storage capacity significantly falls to a level of 4 GWh.

The final results clearly point out that a good, planned balance of PV and wind technologies should be implemented to keep the energy storage at a minimum capacity.

7 Potential ESCO fields of operation

According to the EC Status Report 2010 regarding “Energy Service Companies Market in Europe”, provided on behalf of the European Commission¹ covering EU- and neighboring countries “energy service projects focus on the development of comprehensive solutions for improving energy efficiency and increasing the utilization of renewable energy sources. Energy service contracts help to overcome financial constraints to energy efficiency investments by paying off initial costs through the future energy cost savings resulting from reduced energy consumption.”

The Report described the Croatian market size for ESCOs with a total transaction volume of € 10 Mio. In 2010, whereas the total market potential was estimated to be € 300 Mio.

Whereas the EU Directive 2006/32/EC on Energy End use Efficiency and Energy Services (Energy Services Directive) has played a crucial role in establishing a basic framework as well as a widely accepted ESCO related terminology within the EU and neighboring countries, the practical implementation of ESCO projects still varies widely amongst the individual states and generally lacks far behind such activities in the USA.

An “Energy Efficiency Project Croatia” was initiated by the World Bank (IBRD) and Global Environment Facility (GEF) in collaboration with Hrvatska Elektroprivreda d.d. and Croatian Reconstruction and Development Bank (HBOR). For this purpose Hrvatska Elektroprivreda d.d. and/or HEP ESCO was extended a loan by the World Bank in the amount of 4.4 million Euros and a GEF grant in the amount of 5 million USD. The total value of the Project, with participation of domestic banks, is estimated at 40 million USD over a six-year period.

The national character of the Energy Efficiency Project is strongly supported by the Croatian legislation through the provisions of the Energy Act (particularly the section entitled “Energy efficiency and renewable energy sources”), Croatian Energy Development Strategy which is aimed at improving energy efficiency, Government-approved national energy efficiency programs, and by Environmental Protection and Energy Efficiency Fund which was established to secure additional funding for projects, programs and similar activities in the fields of conservation, sustainable use, protection and improvement of the environment, and others.

The Energy Efficiency Project contributes to achieving the objectives set out in [Directive 2006/32/EC](#) of the European Parliament and of the Council concerning efficient use of energy and energy services. The aim of the Directive is to save 9% of energy in the ninth year of application of energy services and other measures for energy efficiency improvements.²

The Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects (PEEREA) published its latest “Regular Review of Energy Efficiency Policies” for Croatia in 2010. The paper specifies trends in energy and energy efficiency policies, instruments and actors in Croatia. It highlights that Croatia has undertaken substantial efforts to adapt its legislation to the EU *acquis communautaire*, which by and large has been accomplished in the meantime. An important part of this efforts resulted in an “Adjustment and Upgrading of Energy Sector Development Strategy of the Republic of Croatia” covering the period from 2008-2020. The strategy targets towards

- Energy supply security
- Energy system competitiveness, and
- Energy development viability.

¹ Joint Research Centre, Institute of Energy, JRC 59863, <http://re.jrc.ec.europa.eu/energyefficiency/>

² Source: <http://www.hep.hr/esco/en/iproject>

A "Green Book" was published for public discussion, presenting the strategy and subsequently a "White Book" (a summary of the strategy) as a result of the discussion was adopted by the Croatian Government in October 2009.³ A number of additional documents and regulations have been worked out, the "National Energy Efficiency Action Plan (NEEAP) being one of them, quite important for the development of ESCO projects. The NEEAP contains a description of measures to improve energy efficiency and energy services in Croatia to achieve the indicative targets which have been set for 2010 and 2016 (for ex. National indicative energy savings target of 9% of the final inland energy consumption by 2016).

Table 1 – Summary of Measures in the National Energy Efficiency Action Plan⁴

National indicative annual energy savings target 2016 (PJ)		19.77
National intermediate indicative annual energy savings target 2010 (PJ)		6.59
Measures to improve energy efficiency planned for achieving the target	Annual energy savings expected by end 2010 (PJ)	Annual energy savings expected by end 2016 (PJ)
Package of measures in the residential sector	2.62	7.17
Package of measures in the tertiary sector	1.14	3.68
Package of measures in industry (non-ETS)	1.24	4.05
Package of measures in the transport sector	1.60	6.59
Total ESD energy savings expected:	6.60	21.49

Unlike the introduction of a promotion system (mandatory offtake combined with feed-in tariff) for renewable energy production no specific financial incentives for energy efficiency activities have been provided by the state budget. However, the implementation of a specific purpose fund, the "Environmental protection and Energy Efficiency Fund", has given significant momentum to the development of energy efficiency projects. These initiatives were also the only significant measurements creating a more favorable climate for ESCO business.

Market

Market potential for energy efficiency projects in Croatia is estimated at more than 2.4 billion kuna and is on the steady increase. This is due to growing prices of oil, gas, electricity and other sources of energy, the process of harmonization with the EU where energy efficiency has become a high priority topic, the strengthening of "green" awareness, etc. HEP ESCO additionally develops the ESCO market for the services which besides energy savings include investment payback through savings.

³ OG 130/2009

⁴ Source: PEEREA - Regular Review of Energy Efficiency Policies, CROATIA, 2010

The Croatian market leader in ESCO business, HEP ESCO d.o.o. works specifically in the following areas:

- Buildings (schools, offices, hotels, universities, hospitals, etc.),
- Public lighting
- Industry
- Energy supply systems (cogeneration, district heating)

In view of the nature of the island of Hvar as a touristically and agriculturally dominated region the following types of projects provide major opportunities for ESCO operation on the island of Hvar:

- Energy efficiency measures in (public and private) buildings
- Public lighting projects

Solar thermal and solar cooling projects

8 Barriers and risks

The following 10 major barriers for ESCo business in Europe have already been identified in the European ESCO Status Report 2007⁵, but represent still most of the major inhibitors for today's Croatian market:

- Low awareness of and lack of information about the ESCO concept
- Mistrust from the clients
- High perceived technical and business risks
- Public procurement and accounting rules
- Lack of accepted standardized measurement and verification procedures
- Administrative hurdles and consequently high transaction costs
- Principal /agent dilemma with split incentives in the housing sector
- Aversion to outsourcing energy
- Lack of appropriate forms of finance
- Low priority of energy efficiency measures.

In the EC Status report of 2010 the Croatian development regarding ESCO's is described as follows:

"As of 2007 there was one Energy Service company in Croatia offering EPC (energy performance contracting). At that time only 3 projects had been completed with focus on public lighting and improvements in educational buildings. Two years later, in 2009 – besides a number of companies that occasionally dealt with ESCO type projects – only two small ESCO's were present on the Croatian market (HEP-ESCO d.o.o.6 and EETEK7). HEP-ESCO being a subsidiary of the national utility company HEP and EETEK a subsidiary of an international facility management group. Both ESCO's have energy services as their core business.

Most ESCO projects in Croatia target refurbishment and modernization of public buildings (according to the a.m. study these projects accounted for 55% of the total energy

⁵ Joint Research Centre, Institute of Energy, JRC 59863, <http://re.jrc.ec.europa.eu/energyefficiency/>

⁶ <http://www.hep.hr/esco/en>

⁷ Meanwhile re-named to "Saphire Sustainable Development LTD"

efficiency projects), followed by street lighting improvements (approx. 33-42%), whereas the industrial sector only represented 5-16%.

Apart from the a.m. companies (whereas HEP ESCO d.o.o. was named "key market creator for energy efficiency projects" by PEEREA8) during the last few years a few other companies have shown activities in ESCo projects. Specifically for Croatian hospitals an ESCo model has been developed by Energy Institute "Hrvoje Pozar" (for ex. for the Clinical Centre Zagreb). HEP ESCO d.o.o. and Energy Institute "Hrvoje Pozar" participate as 2 of 13 institutions of 8 different countries in the project BioSolESCO, funded by the Intelligent Energy Europe program⁹ with the aim to promote heat recovery from biomass and solar energy in the private and public sector.

In a presentation of HEP ESCO d.o.o. in connection with the BioSolESCO project in May 2011¹⁰ the following barriers for ESCO business in Croatia were summarized as follows (see also the subsequent sections of this paper):

- Market barriers:
 - Unsolved ownership relations
 - Long term contracts for E.E. treated as a credit relationship
 - Existing low – insufficient to support E.E. projects
 - Public procurement law – problem for public ESCO's
 - Budget low for the municipalities – need for modifications (Cost for repayment of the energy efficiency – bookkeeping, budget planning based on the costs of the previous year)
 - Creditworthiness of the clients
- Financing problems:
 - Banks do not recognize ESCO projects as the special product
 - Project finance is not popular for ESCO business
 - Collateral is still a big problem
- NEW barrier erased from the financial crises
 - Too expensive loans – no available funds
 - Long term loans are not available at the moment.

In regard to contractual relationship the predominant contractual models in Croatia are energy performance contracts with guaranteed or shared savings (see also section 10).

Generally spoken the ESCo business in Croatia is currently under development although there are many opportunities in the ESCo market. However, the barriers still have a significant impact on the whole procedure for ESCo companies and the development is slightly lagging.

8.1 REGULATORY AND LEGISLATIVE BARRIERS

Croatian government has not provided sufficient support for implementation of energy efficiency projects and renewable energy projects which also affected ESCo business. Croatian legislative and regulatory system is currently in phase of introducing significant changes and the ESCo market is very often influenced by the introduced changes in the legislative and regulatory system. Worldwide fluctuation of energy prices significantly contributes to uncertainty of implementation both energy efficiency and renewable energy projects which are the focus of ESCo businesses. However, the general trend

⁸ Regular Review of Energy Efficiency Policies, CROATIA, 2010

⁹ EU program IIE – Intelligent Energy Europe, 2007-2013

¹⁰ ESCo Development in Croatia, Jasmina Fanjek, dipl.oec., HEP ESCO d.o.o., London, May 2011

observed in the last decade shows that energy prices will rise further and that the annual price fluctuations will not significantly influence ESCo businesses.

- Energy efficiency measures are rather seen as product than as services - For instance, clear rules on how to treat ESCo projects within the budget are nonexistent and the problem lies in the fact that the energy efficiency investments fall into the investment part of the budget but the energy savings fall into the operational part of the budget. The budget is determined according to previous year consumption and therefore, the initiative to implement energy efficiency measures and reduce energy consumption is reduced.
- VAT - In regard to VAT the ESCo model is not regarded as provision of services, but as delivery of goods. Therefore ESCO's need to pay VAT on the total equipment value at the moment of putting energy saving equipment in operation. The services cannot be invoiced by the ESCO as a package.
- Long decision making process - The state as an instrument could provide an example but the procedure in local administration centers related to budget distribution is still rather rigid and unclear.

Public procurement rules – Another big issue worth mentioning related to ESCo's is the public procurement system in Croatia in which a public institution or a public company has to separately procure design and works. Such procurement system practically has the largest influence on the ESCo projects implementation.

8.2 FINANCIAL BARRIERS

ESCO financing usually takes place either by funding of a project by the ESCO itself, which may either use internal funds or funding through external debt, leasing or other instruments (such as grants or subsidized loans). ESCOs rarely use equity for financing of their projects, because that option reduces their ability to implement projects on a sustainable basis.

According to the European Association of Energy Services Companies¹¹ "energy user/customer financing usually involves financing with internal funds of the user/customer backed by an energy savings guarantee provided by the ESCO (for instance, a university can use its endowment fund to finance an energy project, in which the energy savings are guaranteed by an ESCO. Energy users/customer funding source may also be associated with borrowing, but it comes from the customer's internal capital expenditure (CAPEX) budget and existing lines of credit."

So far Croatian projects have been financed by loans from commercial banks to the client and/or the ESCO and by state funds. Typically the client and the ESCO also contribute to the funding. FZOEU, the Croatian Fund for environmental protection and energy efficiency is a structured extra-budgetary fund, financing projects in the areas of:

- Environmental protection,
- Energy efficiency, and
- Renewable energy sources.

The financial support of FZOEU has been a driving force for the ESCO market development in Croatia.

- The following financial barriers to ESCO projects in Croatia can be observed: **Project Financing is uncommon** - Unfamiliarity causes the financing institutions to take a step backwards even before consulting

¹¹ Energy Performance Contracting in the European Union, 2011

about the technical aspects of the project. In cases where an ESCo project passes the initial analysis and the bank decides to provide financing, loan conditions are quite unaffordable, meaning high warranty amounts or high interest rates. This part presents the biggest problem since in most cases ESCo projects are regarded as having higher risks than normal projects, however they are often related to energy price fluctuations which are in general favorable for ESCo's.

- **Projects are often small** – For such projects the administrative costs add up disproportionately to the total financing costs and make ESCo projects unattractive.
- **Subsidized fossil fuels** - Subsidies for fossil fuels are still really large in Croatia and the prices of energy are rather low in comparison the other countries, especially EU countries. Low energy prices in Croatia have caused large deficits in state operation and for sure will be further increased in future periods. Up to now, lower energy prices have been used to maintain a rather stable living standard but state's impossibility to deal with large deficits in each year has already led to significant increases in energy prices. Inevitable increase in energy costs will provide a large window of opportunity for ESCo companies since few companies and local administration unit will be able to maintain normal operation under conditions with high energy prices.

8.3 SUPPORT BARRIERS

UNDP launched a project aiming at reduction of barriers in regard to energy efficiency in 2005. Local and national promotion campaigns were targeting at citizens and the private sector providing also free energy efficiency audits and recommendations to citizens. "House in Order" (HiO) was a second project targeting the public administration.

Further EIB launched an energy efficiency program for public sector buildings. Also BIOSELESCO, an Intelligent Energy Europe project promoted the ESCo approach for biomass and solar heat. Similar, MIEE, the Croatian Industrial Energy Efficiency Network programme has been also active in promoting ESCo schemes.

Nevertheless, still one of the main barriers of higher penetration of ESCo companies on the Croatian market is unfamiliarity with the ESCo business model along with lack of information about energy efficiency.

Another directly related barrier is lack of experience in financing and implementation of ESCo business model which significantly impacts all key stakeholders. This, on the other hand, causes low confidence in ESCo companies and ESCo business model in general since companies cannot offer a sufficient number of references and present enough successful cases. Furthermore, the problems are in many cases connected to data unavailability which causes low interest in implementation of energy efficiency measures since exact/approximate payback is very difficult to calculate without complete datasets. This problem causes ESCo's to give up on potentially profitable projects since the investment and payback are uncertain.

Although renewable energy sources market has started to develop at a faster pace, skepticism towards renewable energy sources, in terms of securing the necessary energy, is still rather high. However, more and more stakeholders realize that energy will very soon become a commodity which will be highly valued and that the energy market more and more turns to speculation and external influence thus increasing energy prices on daily basis. Up to now, renewable energy sources have been a good business opportunity due to high feed-in tariffs but also with highly complicated procedures of becoming an eligible producer. Changes have been introduced in the new RES tariff system and the enthusiasm suddenly dropped since the feed-in tariff system is far more realistic and less complicated in terms of obtaining the status of eligible producer.

8.4 TECHNICAL BARRIERS

The major technical barrier for ESCO projects is related to definition and agreement on a **baseline**, as a starting point from which energy savings/measurements can be measured on an objective foundation.

Both ESCOs and their clients require an independently elaborated and standardized measurement tool.

The introduction of the **International Performance Measurement and Verification Protocol (IPMVP)** has filled this gap. IPMVP® existed in various forms since around 1995 when a version of this protocol entitled North American Energy Measurement and Verification Protocol was published. Over time the IPMVP has been expanded and updated. In 2002 IPMVP Inc. was formed as an independent non-profit organization, trying to incorporate the international community. In 2004 IPMVP Inc. Management was placed under a new non-profit called Efficiency Valuation Organization.

The use of IPMVP is now very widespread amongst ESCOs in many countries around the globe, including USA, China, India, Australia, UK, etc.¹²

According to the organization¹³ the International Performance Measurement and Verification Protocol (IPMVP) "provides an overview of current best practice techniques available for verifying results of energy efficiency, water efficiency, and renewable energy projects. It may also be used by facility operators to assess and improve facility performance. Energy conservation measures (ECMs) covered herein include fuel saving measures, water efficiency measures, load shifting and energy reductions through installation or retrofit of equipment, and/or modification of operating procedures."

IPMVP is not intended to prescribe contractual terms between buyers and sellers of efficiency services, although it provides guidance on some of these issues. Once other contractual issues are decided, this document can help in the selection of the measurement & verification (M&V) approach that best matches:

- project costs and savings magnitude,
- technology-specific requirements, and
- risk allocation between buyer and seller, i.e., which party is responsible for installed equipment performance and which party is responsible for achieving long term energy savings

Two dimensions of ECM performance verification are addressed:

- Savings determination technique using available data of suitable quality.
- Disclosure of data and analysis enabling one party to perform saving determinations while another verifies it.

8.5 RISK ASSESSMENT

The general unfamiliarity with the ESCo principle causes both investors and financial institutions like banks to take a step backwards when an ESCo project is presented to them. Perhaps the root cause lies in the incapacity to appraise a risk however small it may be but in general, that is exactly the point of hiring appropriate external consultant/consultant company. Risks can be reduced and the whole procedure of deployment of an ESCo financial support mechanism should be quite simpler through hiring technical and financial consultants. As a consequence of economic recession the credit standing of many potential customers has deteriorated. Consequently, risk margins of financing institutions go up or loans are not available for such customers. Furthermore, with the reduced production output in the industrial sector also the demand for energy efficiency measures in the production facilities has decreased.

¹² Source: http://en.wikipedia.org/wiki/international_performance_measurement_and_verification_protocol

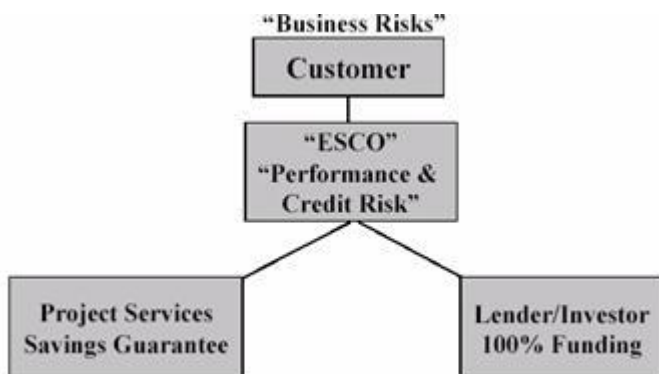
¹³ www.impvp.org; Concepts and Options for determining Energy and Water Savings, Volume One, March 2002

9 ESCo Contracts

The typical contractual structure under which an ESCo provides its services is a so-called **"Energy Performance Contract" (EPC)**. The major performance contracting models are shared savings and guaranteed savings models¹⁴.

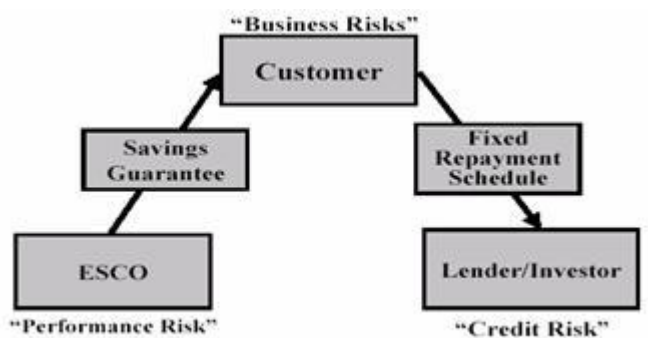
➤ Shared Savings¹⁵

Under this model the cost savings are split for a pre-determined length of time



➤ Guaranteed Savings¹⁶

Under a guaranteed savings contract the ESCo guarantees a certain level of energy savings and in this way shields the client from any performance risk.



According to the European Association of Energy Savings Companies¹⁷ the important **difference** between the 2 models is, that in the **guaranteed model** the performance guarantee is the **level of energy saved**, whereas in the **shared savings model** it is the **cost of energy saved** (and credit risk taken on behalf of the ESCO).

It is stated that **most ESCOs prefer to use the guaranteed savings model** (where the ESCO guarantees a certain level of energy consumption savings and in this way shields the client from any performance risk).

¹⁴ Source: Berlin Energy Agency

¹⁵ Source: Dreessen 2003

¹⁶ Source: Dreessen 2003

¹⁷ Energy Performance Contracting in the European Union, 2011

Table 2. Guaranteed savings and shared savings: a comparison¹⁸:

Guaranteed savings	Shared Savings
Performance related to level of energy saved	Performance related to cost of energy saved; the ESCO bills upon actual results
Value of energy saved is guaranteed to meet debt service obligations down to a floor price	Value of payments to ESCO is linked to energy price; betting on price of energy can be risky
ESCO carries performance risk Energy-user/customer carries credit risk	ESCO carries performance and credit risk as it typically carries out the financing
If the energy-user/customer borrows, then debt appears on its balance sheet	Usually off the balance sheet of energy-user/customer
Requires creditworthy customer	Can serve customers that do not have access to financing
Extensive M&V	Equipment may be leased
ESCO can do more projects without getting highly leveraged	Favors large ESCOs; small ESCOs become too leveraged to do more projects
More comprehensive	Favors projects with short payback ('cream skimming')
	How to share the 'excess' savings

In addition to shared or guaranteed savings contracts a further major type of performance based energy services contract exists: the **Energy Supply Contract (ESC)**. This contract is typically used for the outsourcing of an energy plant, providing energy/heating/cooling. As opposed to the 2 above mentioned models this type of contract **focuses on the energy generation/provision** activities and not on the energy savings.

Other contracting models¹⁹

While there are numerous ways to structure a contract and hence any attempt to be comprehensive in describing EPC variations is in vain, other contractual arrangements deserve attention as well. In the following section the '**chauffage**' contract, the '**first-**

¹⁸ Source: <http://jrc.ec.europa.eu/energyefficiency/european-energy-service-companies>

¹⁹ Source: <http://jrc.ec.europa.eu/energyefficiency/european-energy-service-companies>

out', the **Build-Own-Operate-Transfer (BOOT)** contract and the **Leasing contract** are described.

A very frequently used type of contract in Europe is the '**chauffage**' contract, where an ESCO takes over complete responsibility for the provision to the client of an agreed set of energy services (e.g. space heat, lighting, motive power, etc.). This arrangement is an extreme form of energy management outsourcing. Where the energy supply market is competitive, the ESCO in a chauffage arrangement also takes over full responsibility for fuel/electricity purchasing. The fee paid by the client under a chauffage arrangement is calculated on the basis of its existing energy bill minus a percentage saving (often in the range of 5-10 %). Thus the client is guaranteed an immediate saving relative to its current bill. The ESCO takes on the responsibility for providing the agreed level of energy service for lower than the current bill or for providing improved level of service for the same bill. The more efficiently and cheaply it can do this, the greater its earnings: chauffage contracts give the strongest incentive to ESCOs to provide services in an efficient way. Such contracts may have an element of shared savings in addition to the guaranteed savings element to provide incentive for the customer. For instance, all savings up to an agreed figure would go to the ESCO to repay project costs and return on capital; amounts above this figure will be shared between the ESCO and the customer.

Chauffage contracts are typically very long (20-30 years) and the ESCO provides all the associated maintenance and operation during the contract. Chauffage contracts are very useful where the customer wants to outsource both, facility services and investment.

A **BOOT** model may involve an ESCO designing, building, financing, owning and operating the equipment for a defined period of time and then transferring this ownership across to the client. This model resembles a special purpose enterprise created for a particular project. Clients enter into long term supply contracts with the BOOT operator and are charged accordingly for the service delivered; the service charge includes capital and operating cost recovery and project profit. BOOT schemes are becoming an increasingly popular means of financing CHP projects in Europe. Figure XYZ shows the relationships between parties in a BOOT contract.

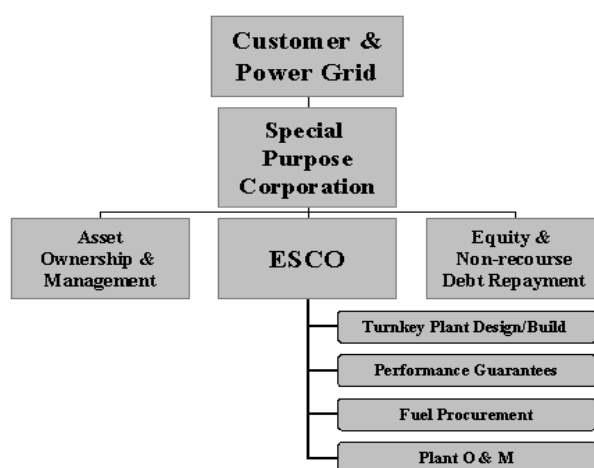


Figure 26. Build-Own-Operate-Transfer (BOOT) model²⁰

²⁰ Source: Dreesen 2003

Leasing can be an attractive alternative to borrowing because the lease payments tend to be lower than the loan payments; it is commonly used for industrial equipment.

The lessee makes payments of principal and interest; the frequency of payments depends on the contract. The stream of income from the cost savings covers the lease payment. The ESCO can bid out and arrange an equipment lease-purchase agreement with a financing institution.

There are two major types of leases: **capital** and **operating** leasing. Capital leases are installment purchases of equipment. In a capital lease, the client (lessee) owns and depreciates the equipment and may benefit from associated tax benefits. A capital asset and associated liability appears on the balance sheet. In operating lease the owner of the asset (lessor – the ESCO) owns the equipment and essentially rents it to the lessee for a fixed monthly fee; this is off-balance sheet financing source. It shifts the risk from the lessee to the lessor, but tends to be more expensive to the lessor. Unlike in capital lease, the lessor claims any tax benefits associated with the depreciation of the equipment. The non-appropriation clause means that the financing is not seen as debt.

10 ESCo - SWOT analysis

The development of an efficient ESCo operation is a key for further market opening. As presented in chapters 5 and 6 and supported by chapter 7, the opportunities for ESCo's on the island of Hvar are quite wide. In order to assess the complete potential, it is necessary to consider all strengths, weaknesses, opportunities and threats.

STRENGTHS

Very favorable climate conditions
 Large number of hotels/apartment houses and larger touristic capacities
 Large scope of possible services
 Large potential for achieving self-sufficiency
 Energy initiative already present on the island

WEAKNESSES

Underdeveloped energy infrastructure on the island
 Low public awareness and general interest on energy issues
 No knowledge on ESCo models or implemented projects
 Relatively low energy prices compared to the income level
 High transport costs from mainland to the island
 Long administrative procedures to obtain legal documentation
 In general, slow project implementation to be expected
 Existing low – insufficient to support E.E. projects
 Budget low for the municipalities – need for modifications (Cost for repayment of the energy efficiency – bookkeeping, budget planning based on the costs of the previous year)

OPPORTUNITIES

No ESCo's present on the island yet
 Solar cooling in tourism
 Solar thermal DHW preparation in tourism
 Implementation of energy efficiency measures in public buildings
 Underdeveloped energy infrastructure on the island
 Large number of larger buildings with energy inefficiencies

THREATS

Constantly changing investment climate in Croatia
 Unsynchronized regulations related to ESCo's (public sector)
 Complex ESCo terms, agreements and contracts
 Bad "marketing"
 Slow decision-making process
 ESCo projects related to energy efficiency can depend on user behavior
 Unsolved ownership relations
 Long term contracts for E.E. treated as a credit relationship
 Creditworthiness of the clients

11 Related examples

Public authorities are using EPC since more than 20 years. The EPC financed retrofitting of public buildings started in North America. Meanwhile EPC projects have become common also in Europe. Thousands of public buildings, hospitals, universities and schools have been modernized. And the number of examples and success stories is increasing.

The following examples have been taken over from the web-site of the European Association of Energy Services Companies (eu.bac)²¹.

11.1 TRANSPORT FOR LONDON, UK

Transport for London (TfL) is the public authority governing all aspects of the transport system in Greater London area in England. The main responsibilities of TfL include preparation and implementation of the transport strategy and management of transport services in London.



Figure 27. Transport for London building

As the main transport authority in London, the TfL certainly produces large quantities of CO₂ emissions both from transport activities and from building operation. The TfL has shown a good example and strengthened its environmental statements by implementing energy efficiency measures in their buildings. The project was a part of the RE:FIT initiative and it included 22 buildings.

²¹ EU-ESCO.ORG\eu_ESCO Success Stories.mht

The challenges of the project included:

- 25% Carbon reduction target
- Building mix
- Capital funding issues

In 2008, TfL signed an agreement with the chosen supplier of services to assess the energy saving potential. The supplier afterwards led the design and coordination and managed the implemented energy efficiency solutions in the buildings.

As presented, Phase 1 performed in 2009 included 22 buildings and an overall investment of approximately £4 million. The specifically designed solutions included:

- Lighting Replacement and Controls
- Upgraded Building Energy Management Controls
- Control of PC's during night time and in stand-by
- Building Fabric Improvements
- Heat recovery
- CHP Plant
- Solar Thermal Hot Water System

The implemented measures have brought approximately 16% cost savings, meaning approximately £700.000 in cost savings. The electricity consumption was expected to fall by 25% and the gas consumption by 20%. The annual CO₂ emissions were expected to be cut by more than 3.500 tons.

11.2 NYKÖPING COMMUNITY, SWEDEN

The Challenge:

The energy usage of the Community's facilities (schools, retirement homes, offices, a heated swimming pool, and industrial sites) was too high and the staff had no control over lowering it.

The Community wanted to improve the comfort levels of its facilities as well as to reduce their energy consumption by 10% from 2006 but had no budget for a full facilities modernization.

The Solution:

AN ESCO offered the Community an ESPC covering 123 of its buildings totalling an area of 257,000 m². Improvements include the installation of a Building Management System in all buildings, new heat pumps and solar pannels, sensor-controlled lighting and heating/cooling, etc.

The Results and Benefits:

The project resulted in a 21% cut in the Community's energy bill (saving 4,300 tonnes of CO₂ each year) as well as savings on maintenance

11.3 ROYAL GWENT HOSPITAL, UK

The Challenge:

Improving the aged infrastructure and carrying out other innovation in a hospital complex covering 800 beds, 15 operating theatres and a specialist ophthalmic unit.



Figure 28. Royal Gwent hospital

The Solution:

An ESCO was engaged in a 15 year scheme, introducing an CHP, 3 new steam boilers, a lighting retrofit and water conservation measures.

The Results and Benefits:

The hospital now has 620,000 Euros of guaranteed annual savings. In 2004, it won the NHS Best Practice Award for Energy Efficiency.

11.4 CITY OF BERLIN, GERMANY

The Challenge:

In 1995, the city of Berlin launched an energy-saving strategy with an obligation to reduce CO₂ emissions.

The Solution:

An energy services company prepared an Energy Saving Partnership (ESP) with energy management solutions for 85 properties around the city

Results and Benefits:

CO₂ emissions were reduced by 25% per year, corresponding to roughly 16,200 tonnes of CO₂. Moreover, annual energy cost saving totals €2.848 million.

The following examples of Croatian ESCO projects have been developed by HEP ESCO d.o.o.²²

11.5 CITY OF ROVINJ – PUBLIC LIGHTING

In April 2006, HEP ESCO and the City of Rovinj signed Implementation Contract for an energy efficiency project for public lighting, worth 1.8 million kuna. The Project, completed in December 2007, brings the city of Rovinj savings in public lighting costs of more than 120 thousand kuna a year.

With this Project HEP ESCO provided the city of Rovinj with modernized public lighting at existing costs. That is to say that the entire Project management and financing for energy efficiency was secured by HEP ESCO while the City of Rovinj will repay the investment from savings over eight years. The financing for the portion is not related to energy efficiency and/or is not included in the eight-year repayment period was secured by the city of Rovinj.

The modernization included replacement of old light bulbs with modern, lower-power light bulbs of improved geometry, and replacement of obsolete mercury light bulbs with more efficient sodium light bulbs. A third component of the Project was the installment of light flow controls to reduce consumption in late night hours.

The jointly selected lighting fixtures are of shady type, whereby light pollution is also reduced. This choice, for example the replacement of the light bulbs that are spherical in shape with those that have minimal light dissipation above the horizontal level, is more efficient in protecting the environment and human health.

The Project saves the city of Rovinj 120 thousand kuna a year.

11.6 CITY OF KARLOVAC – PUBLIC LIGHTING

The Energy Efficiency Project for Public Lighting developed and implemented by HEP ESCO in the city of Karlovac was worth 8.2 million kuna. The implementation of the Project brings the city of Karlovac energy savings of as much as 686 thousand kuna a year.

The Project was carried out on ESCO model in which HEP ESCO developed and implemented the Project and financed its energy efficiency portion amounting to 5.5 million kuna. The remaining amount of 2.7 million kuna was secured by the city of Karlovac.

The Project included replacement of 2,100 old mercury light bulbs with new, more efficient sodium light bulbs. Light flow controls which additionally save energy in late night hours were also installed.

With the new public lighting system Karlovac achieves significant financial savings resulting from savings in energy and maintenance costs. The improved public lighting, besides being cost-effective, contributes to bio-diversity and preservation of the night sky.

The annual savings for Karlovac resulting from the Project are as much as 25 percent.

²² <http://www.hep.hr/esco/en/references/rovinj/default.aspx>

11.7 CITY OF SISAK - SCHOOLS

In cooperation with UNDP, HEP ESCO carried out Energy Efficiency Project to modernize schools in the city of Sisak.

As part of the systematic energy management in cities, UNDP performed energy audits of all buildings owned by the City and an analysis of cost-effectiveness of system reconstruction.

Based on the completed studies, HEP ESCO implemented energy efficiency projects in two Sisak's elementary schools, Viktorovac and Braće Ribar.

The modernization project for Elementary School Viktorovac encompassed modernization of the heating system, dismantling of the existing oil-fired boiler room and installation of a 500 kW hot water heating substation and its connection to the hot water system of HEP Toplinarstvo. Replacement or repair of worn fittings in the boiler room was also carried out.

In Elementary School Braća Ribar, a gas boiler room was installed with all associated gas, electrical and gas alarm fittings.

The project is very important because the modernized school premises are now more comfortable for teachers and students and facilitate the teaching process. In addition, with this Project the city of Sisak has disencumbered the local community while achieving significant financial and energy savings.

11.8 SLADORANA SUGAR FACTORY

For the Sladorana Sugar Factory, a HEP-ESCO team of specialists has prepared and implemented a project to modernize the existing systems.

The project was carried out in two phases: improvement in efficiency of electrical motor plants and reconstruction of electricity supply.

Since the studies showed that the factory's potential for savings was excellent, a contract was entered into and the implementation of phase one of the energy efficiency project began – improvement in efficiency of electrical motor plants.

The electrical motors that drive the sugar processing machinery had until then operated at full capacity regardless of the amount of material to be processed, so the energy was frequently unnecessarily wasted.

As part of the project, frequency converters were installed on six electrical motors to allow the machines to operate at the power necessary to process a given quantity. As much as 50 percent of energy is thus saved.

After the excellent results achieved with a first project, HEP ESCO implemented a second project for the Sugar Factory – reconstruction of electricity supply.

This project allowed parallel operation of the Factory's generators as well as peak load management, aimed at reducing any damage that may occur as a result of outage of energy and production plants and their restart.

11.9 ENERGY SUPPLY SYSTEMS / COGENERATION IN HRST FACTORY

The factory in Strizivojna is one of the most significant manufacturers of hardwood parquet in Croatia. In the manufacturing process a larger quantity of wood residue is generated which is then briquetted and placed on the market as fuel (dry sawdust), used to generate heat energy (dry and wet sawdust) or stored in the disposal area.

The project includes the construction of a co-generation plant (simultaneous production of heat and power) which would satisfy energy requirements of the drying plants and electrical system. Surplus energy produced would be fed into the network to achieve additional profits.

The project solves two basic problems of the factory: supply of low-cost electricity and management of unusable wood waste. Specifically, electricity supply is provided by HEP and by production in diesel units, which results in high prices. The construction of a cogeneration plant would also solve the problem of waste in the form of wood residue which would be used as fuel for the cogeneration plant.

In addition to economic benefits through lower electricity price, selling of surplus energy, higher profits, the project reduces significantly emissions of pollutants into the environment.

12 Conclusion

The energy balance of island of Hvar presents a very good image of typical Croatian island energy consumption. Very high summer electricity consumption due to intensive touristic season is a characteristic occurrence and it perfectly fits with the potential RES electricity production during summer. Relatively high biomass consumption for heating energy is a good thing however the sustainable use of biomass is questionable. There is still a large portion of heating systems which use fossil fuels. Most heating systems are very old and inefficient which along with energy inefficient buildings actually causes excessive fuel consumption. Energy efficiency measures in combination with renewable energy sources should be the main focus of future development of the island in order to achieve the set self-sufficiency goal. It was shown that with energy efficiency improvements, renewable energy sources and careful energy management policies can achieve absolute independence from the mainland. This will require significant efforts from the whole community but it will also ensure proper development of the island and advancement towards European Union goals.

The promotion and encouragement of energy efficiency measures is a very important objective of national energy policy (quotation from the Energy Act, part IV, Article 12: "Efficient energy use is of interest for the Republic of Croatia").

This fact, along with the energy component (reduced need for energy generation and imports), has significant impact on the encouragement of the application of environmental protection measures aimed at greenhouse gas emission lowering (lower generation in power plants).

Citing the Environmental Management Framework (EMF), published by HEP group in 2010²³ "the implementation of EE projects is almost identical to the implementation of any other investment project. The legislative framework is the same, and the scope of its application depends on the type and character of EE projects."

The Environmental Protection Plan has been developed for four typical types of EE projects. These are:

- the modernization of street lighting in the cities,
- projects connected with heating systems,
- energy retrofits in buildings with respective energy consumers,
- construction cogeneration on biomass.

Consultations with potential stakeholders show that there is a broad interest and need for the development of EE market via ESCO projects, but also a number of barriers, the most significant ones being the **lack of financing** and **insufficient knowledge** of the nature of such projects.

²³ HEP Group, Development Department, HEP ESCO Team, Author: Gordana Lucic M.Sc.M.E.

EXAMPLES OF ESCo CONTRACTS

ENERGY SERVICES COALITION - EPC²⁴

UNITED STATES - EPC²⁴

²⁴ RETScreen International - http://www.etscreen.net/ang/energy_performance_contracts.php

Attachment G – Energy Performance Contract



The Energy Services Coalition offers a collection of model procurement and contracting documents that represent Best Practices for state energy offices (SEOs) to launch and administer programs to increase energy efficiency through energy performance contracting. The documents draw from successful programs in various states and are continually updated to incorporate the latest strategies. They can be easily customized to meet the needs of any SEO or similar government department.

DESCRIPTION –Energy Performance Contract

This Energy Performance Contract is for design, construction, guarantee, and follow-up monitoring of energy-saving projects. An energy audit was previously completed that identified the costs and savings of each project. The audit provides the basis to develop and negotiate this Energy Performance Contract.

This is a model document only and does not attempt to identify or address all circumstances or conditions you may encounter or desire. Consult with your legal counsel and procurement staff to adapt it to meet your needs.

MODEL ENERGY PERFORMANCE CONTRACT

This Energy Performance Contract (the "Contract") is made and entered into as of this day of _____, at _____, in the County of _____, State of _____, by and between _____ ("ESCO"), having its principal offices at _____, and _____ ("Institution") having principal offices at _____, for the purpose of installing certain energy and water cost saving equipment, described in Schedule A, and providing other services designed to save energy for the Institution's property and buildings, known as _____, located at _____ (the "Project Site(s)").

RECITALS

WHEREAS, Institution owns and operates the Project Site(s), and is in need of energy and water cost saving equipment and services designed to save energy and associated energy costs at said Project Sites; and

WHEREAS, Institution has been authorized to enter into a third party financing agreement for all professional services, equipment and construction for the purchase and installation of energy and water cost savings measures, collectively referred to as the "Work" (as herein after defined); and

WHEREAS, ESCO has developed or become knowledgeable about certain procedures for controlling energy and water consumption through services provided and equipment installed and maintained at project sites similar in scope and scale of Institution; and

WHEREAS, ESCO was selected after a determination that its proposal was the most advantageous to Institution pursuant to a Request for Proposal and contract for the Technical Energy Audit and Project Development Proposal (as hereinafter defined); and

WHEREAS, ESCO has made an assessment of the utility consumption characteristics of the Project Site(s) and existing Equipment described in **Schedule B (Description of Project Site(s))**, which was delivered to Institution as a Technical Energy Audit Report which Institution has approved and is attached as Appendix C; and

WHEREAS, Institution desires to retain ESCO to purchase, install and service certain energy and water cost savings equipment and to provide other services and strategies described in the attached Schedules, for the purpose of achieving energy and water cost reductions within Project Site(s), as more fully described herein; and

WHEREAS, Institution is authorized under the Constitution and the laws of the State of _____ to enter into this Contract for the purposes set forth herein.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, and intending to be legally bound hereby, Institution and ESCO hereto covenant and agree that the following Schedules, Exhibits and Appendices are attached hereto (or will be, as provided in this Contract) and are made a part of this Contract by reference.

ARTICLE 1. DEFINITIONS, SCHEDULES, EXHIBITS AND APPENDICES

Section 1.1. Definitions.

Certificate of Acceptance: The certificate substantially in the form provided in **Appendix A**.

Contract: This Energy Performance Contract and all Schedules and Exhibits attached hereto.

Contract Sum: The sum of all materials, labor, auditing, design, engineering, project construction management fees, overhead, profit, contingency, subcontracted services related to the project.

Energy and Water Cost Savings: The savings as provided in **Schedule C (Energy and Cost Savings Guarantee)**.

Energy and Cost Savings Guarantee: The guarantee that is achieved as a result of the installation and operation of the Equipment and provision of services provided for in this Contract as specified in **Schedule D (Compensation to ESCO for Annual Service)** and in accordance with the Savings Calculation Formula as set forth in **Schedule F (Savings Measurement and Verification Plan; Methodology to Adjust Baseline)**.

Equipment: The goods enumerated on **Schedule A (Equipment to be Installed by ESCO)** that is now or hereafter from time to time become attached hereto and incorporated herein by reference, together and with any and all additions, modifications, attachments, replacements and parts thereof.

Event of Default: Those events described in **Section 19 (Events of Default)** hereof.

Interim Period: The period from contract execution until the Commencement Date.

Commencement Date: The date described in **Section 3.2 (Commencement Date)**.

Project Site(s): The facilities of the Institution in need of energy and water saving equipment and services designed to reduce consumption and associated costs at said Project Site(s)

Technical Energy Audit: A study by the qualified energy services provider selected for a particular energy performance contract project which includes detailed descriptions of the improvements recommended for the project, the estimated costs of the improvements and the utility and operations and maintenance cost savings projected to result from the recommended improvements.

Work: Collectively, the Equipment, professional services and project construction related to the project.

Section 1.2. Technical Energy Audit Report and Project Development Proposal.

Section 1.1: This section records the approval and acceptance by the Institution of the Technical Energy Audit Report which must be completed prior to the execution of this contract. A Certificate of Acceptance of the audit should be signed by both parties and attached to the contract (Exhibit III (i)). If the list of measures is not completely finalized prior to the signing of this contract, then language to that effect should be included.

ESCO has prepared the complete Technical Energy Audit Report of the Project Site(s) set forth in Appendix C (*Technical Energy Audit*) and dated _____ which has been approved and accepted by Institution as set forth in Exhibit III (i) (*Certificate of Acceptance—Technical Energy Audit Report*). The audit includes all energy conservation measures agreed upon by the parties.

Section 1.3. Schedules, Exhibits and Appendices

Section 1.2: The contract schedules detail the substantive technical parameters of the projects negotiated by the parties and accepted and approved by the Institution. These schedules are also referenced throughout the various sections of the Contract. Their titles may be included here for ease of reference or located at the end of the contract. If any schedules need to be completed after execution of the contract, language to the effect they are forthcoming should be included. (Please note that descriptions for each contract schedule are provided at the end of this sample contract document under the heading of Attachment I.)

ESCO has prepared and Institution has approved and accepted the following Schedules, copies of which are attached hereto (or will be as provided for in the Contract), set forth in their entirety as Attachment I and made a part of this Contract by reference.

Schedules

Schedule A	Equipment to be Installed by ESCO
Schedule B	Description of Project Site(s)
Schedule C	Energy and Water Cost Savings Guarantee
Schedule D	Compensation to ESCO for Annual Services
Schedule E	Baseline Energy Consumption
Schedule F	Savings Measurement and Verification Plan; Methodology to Adjust Baseline
Schedule G	Construction and Installation Schedule
Schedule H	Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment
Schedule I	Standards of Comfort
Schedule J	ESCO's Maintenance Responsibilities
Schedule K	Institution's Maintenance Responsibilities
Schedule L	Facility Maintenance Checklist
Schedule M	ESCO's Training Responsibilities

Schedule N	Financing Agreement and Payment Schedule
Schedule O	Alternative Dispute Resolution Procedures
Schedule P	Final Project Cost & Project Cash Flow Analysis
Schedule R	Annual Reporting Requirements

Exhibits

Exhibit I	Performance Bond
Exhibit II	Labor and Material Payment Bond <i>if required</i>
Exhibit III (i)	Certificate of Acceptance—Technical Energy Audit Report
Exhibit III (ii)	Certificate of Acceptance—Installed Equipment
Exhibit IV	Equipment Warranties

Appendices

Appendix A	RFP for ESCO Solicitation
Appendix B	ESCO Proposal
Appendix C	Technical Energy Audit Report

Section 1.3. Other Documents

Section 1.3: This section makes the original Request for Proposals (RFP) and the selected ESCO's proposal part of the contract. It also acknowledges the completion of the ESCO's Technical Energy Audit Report and its approval and acceptance by the Institution. It is recommended that the original Technical Energy Audit Report in its entirety be attached and/or referenced as an Exhibit to this contract. It is important to note the last sentence of this provision makes it clear that if there is any future discrepancy between the Technical Energy Audit Report and any technical schedule(s), the terms of this contract shall apply.

This Contract incorporates herein and makes a part hereof the entire RFP and ESCO Proposal for this Project labeled Appendix A and B respectively. Acceptance by the Institution of the Technical Energy Audit Report is reflected in Exhibit III (i). Notwithstanding, the provisions of this Contract and the attached Schedules shall govern in the event of any inconsistencies between the Technical Energy Audit Report and the provisions of this Contract.

ARTICLE 2. ENERGY USAGE RECORDS AND DATA

Article 2: This section ensures that the ESCO has access to the historical energy consumption, facility operations and occupancy data in order to develop baseline utility consumption. At a minimum, there should be 24 months of data made available, however, 36 months is recommended. Existing facility conditions, operations and equipment needs to be carefully recorded to establish an accurate baseline. This will serve as a record of your buildings as they were configured prior to project installation and will be critical to the establishment and adjustment of baseline, and measurement of savings. As well, any prior technical studies and/or energy audits should also be made available for the ESCO's review and verification.

Institution has furnished and shall continue to furnish (or authorize its energy suppliers to furnish) during the Term of this Contract to ESCO or its designee, upon its request, all of its

records and complete data concerning energy and water usage and related maintenance for the Project Site(s).

ARTICLE 3. PURCHASE AND SALE; COMMENCEMENT DATE AND TERMS; INTERIM PERIOD

Section 3.1. Purchase and Sale

Institution agrees to lease Equipment through a third party financier, name of lender, as provided for in a separate lease document, **Schedule N (Financing Agreement and Payment Schedule)**. ESCO agrees to provide the Equipment, together with installation, maintenance and other services as provided herein, as in **Schedule A, (Equipment to be Installed by ESCO)** based upon the terms and conditions set forth in **Schedule N**.

The agreed to Contract Sum for the Work is a Guaranteed Maximum Price of \$ as set forth in **Schedule P (Final Project Cost & Project Cash Flow Analysis)**. Payment terms are described in **Schedule N (Financing Agreement and Payment Schedule)**.

ESCO will provide the Work and all related services identified in **Schedule A (Equipment to be Installed by ESCO)** and the services detailed in **Schedule J (ESCO's Maintenance Responsibilities)** and **Schedule D (Compensation to ESCO for Annual Services)**. ESCO shall supervise and direct the Work and shall be responsible for all construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under this Contract. ESCO shall be responsible to pay for all labor, materials, equipment, tools, construction equipment and machinery, transportation and other facilities and services necessary for the proper execution and completion of the Work.

When using a third-party lease-purchase structure the ESCO will receive 100% of the Contract Sum from the Institution once the Certificate of Acceptance is signed. The payments to the ESCO during the construction period (Interim Period) can be drawn down by the ESCO from the proceeds of the lease through an escrow account set up by the leasing ESCO. Payments will be made based upon the percentage of work completed and approved by the Institution. The Institution should require a % retainage be withheld from the ESCO until the Certificate of Acceptance is executed at which time final payment can be made.

Institution shall pay ESCO the Contract Sum in accordance with **Schedule N (Financing Agreement and Payment Schedule)**. Payments will be made on a progress basis in accordance with **Schedule N**, for Work completed and authorized by Institution during the Interim Period. The Progress Payments outlined in **Schedule N** will not be applicable to this Contract. Retainage of % will be withheld from each payment until the construction installation is completed as set forth in **Section 3.2 (Commencement Date)**.

Section 3.2. Commencement Date

Section 3.2: This section defines the Commencement Date which is the actual beginning date for the savings guarantee period. It is standard for this date to be the first month AFTER the ESCO has completed construction and delivered a notice that all equipment is installed and operating. In addition, the Institution will have accepted the installation by signing a Certificate of Acceptance which should be attached to the contract. It also clearly states that no payment for any of the ESCO's on-going services (e.g. measurement and verification, project monitoring, maintenance, training etc.) will be made prior to the Commencement Date. It is recommended that the repayment obligation of project financing be arranged to coincide with the Commencement Date. The timing of the Commencement Date may also need to be arranged to accommodate the Institution's fiscal year for the purpose of appropriations and budgeting. This date alignment should not prevent the ESCO from timely remuneration for training and other services performed prior to Commencement Date.

The Commencement Date shall be the first day of the month after the month in which all schedules are in final form and accepted by Institution and ESCO shall have delivered a Notice to Institution that it has installed and commenced operating all of the Equipment specified in **Schedule A (Equipment to be Installed by ESCO)** and in accordance with the provisions of **ARTICLE 6 (Construction Schedule and Equipment Installation; Approval)**, **Schedule G (Construction and Installation Schedule)** and **Schedule H (Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment)**; and Institution has inspected and accepted said installation and operation as evidenced by the Certificate of Acceptance as set forth in **Exhibit III (ii) (Certificate of Acceptance—Installed Equipment)**.

Notwithstanding anything to the contrary in this **Article 3** and **Article 4 (Purchase and Sale; Commencement Date and Terms; Interim Period)**, the Commencement Date shall not occur and the Institution shall not be required to accept the work under this Contract unless and until all Equipment installation for the Project Site(s) is completed by ESCO in accordance with the terms and conditions of this Contract. Institution shall have _____ days after notification by the ESCO to inspect and accept the Equipment. Institution reserves the right to reject the Equipment if installation fails to meet reasonable standards of workmanship, does not comply with applicable building codes, or is otherwise not in compliance with this Contract. ESCO shall not be paid in full, including retainage, until after the punch list is completed and ESCO has satisfied any and all claims for labor and materials and the Certificate of Acceptance has been signed. The Certificate of Acceptance will not be unreasonably withheld by the Institution.

Compensation payments due to ESCO for on-going services and maintenance under this Contract as set forth in **Schedule D (Compensation to ESCO for Annual Services)** shall begin no earlier than _____ from the Commencement Date as defined herein.

Section 3.2. Term of Contract; Interim Period

Section 3.2: Prior to the Commencement Date (Section 3.1) the final contract and technical schedules are negotiated and executed by signature. At that point in time the ESCO typically begins the final design of the project and finalizes the construction schedule with the Institution. The "Interim Period" refers to the construction period, during which some amount of energy

savings will start to accrue. The treatment of those energy savings can be negotiated to either be credited to the ESCO's guarantee or credited to the Institution. If such savings are credited to the ESCO's guarantee, it is recommended that such credit be extended for a specified period of time (e.g. 1-2 years). If the ESCO is credited with the interim period savings, the Institution and ESCO will need to agree to develop an approach to the measurement of those savings.

Subject to the following sentence, the term of this Contract shall be _____ years measured beginning with the Commencement Date. Nonetheless, the Contract shall be effective and binding upon the parties immediately upon its execution, and the period from contract execution until the Commencement Date shall be known as the "Interim Period". All energy savings achieved during the interim period will be fully credited to Institution.

ARTICLE 4. SAVINGS GUARANTEE; ANNUAL RECONCILIATION; PAYMENTS TO ESCO

Section 4.1. Energy and Cost Savings Guarantee

Section 4.1: This section establishes the term of the Energy and Cost Savings Guarantee to be on an annual basis and structured to cover any and all annual payments (debt service/lease payment and on-going ESCO fees) to be made by the Institution. It ensures that the ESCOs' savings guarantee will at least cover annual project lease-purchase costs (principal and interest) and all annual ESCO service fees for maintenance.

ESCO has formulated and, subject to the adjustments provided for in **ARTICLE 17 (Material Changes)**, has guaranteed the annual level of energy and water cost savings to be achieved as a result of the installation and operation of the Equipment and provision of services provided for in this Contract in accordance with the methods of savings measurement and verification as set forth in **Schedule F (Savings Measurement and Verification Plan; Methodology to Adjust Baseline)**. The Energy and Cost Savings Guarantee is set forth in annual increments for the term of the Contract as specified in **Schedule C (Energy and Cost Savings Guarantee)** and has been structured by the ESCO to be sufficient to cover any and all annual payments required to be made by the Institution as set forth in **Schedule D (Compensation to ESCO for Annual Services)** and **Schedule N (Financing Agreement and Payment Schedule)**.

Section 4.2. Annual Review and Reimbursement/Reconciliation

Section 4.2: At the end of each year of the contract and within a specified number of days, there will be a review and reconciliation of the actual achieved savings (subject to any adjustments made for weather, occupancy, operations etc.) with the ESCO's guaranteed savings. If there is a savings shortfall, the ESCO is contractually liable to reimburse the Institution for the difference between what was actually achieved and the amount guaranteed. If in any future year, the achieved savings exceed the guarantee, the excess savings will be used to reimburse the ESCO for any shortfall payments made in previous years. It is recommended that all excess savings be retained by the Institution except when the ESCO has had a previous year's shortfall and not be

credited to satisfy savings guarantees in future years of the contract. Institution may negotiate to receive cash, equipment or services equivalent to any deficiency in savings.

Energy-related cost savings shall be measured and/or calculated as specified in **Schedule F (Savings Measurement and Verification Plan; Methodology to Adjust Baseline)** and a report provided within ninety (90) days of the end of the year for the previous year for each anniversary of the Commencement Date.

In the event the Energy and Cost Savings achieved during such guarantee year are less than the Guaranteed Energy and Cost Savings as defined in **Schedule C (Energy and Cost Savings Guarantee)**, ESCO shall pay the Institution an amount equal to the deficiency.

The ESCO shall remit such payments to the Institution within days of written notice by the Institution of such monies due. When the total energy savings in any one year during the guarantee period exceed the Energy and Cost Savings Guarantee as set forth in **Schedule C (Energy and Cost Savings Guarantee)** and are in addition to those monies due the ESCO for compensation for services as set forth in **Schedule D (Compensation to ESCO for Annual Services)**, such excess savings shall first be applied to reimburse ESCO for any payment ESCO made to Institution to meet ESCO's guarantee for previous years in which the energy savings fell short of ESCO's Energy and Cost Savings Guarantee under the terms as set forth in **Schedule C (Energy and Cost Savings Guarantee)**. In no event shall credit for excess savings be used to satisfy saving guarantees in future years of the Contract

Section 4.3. ESCO Compensation and Fees

Section 4.3: This section ensures that the ESCO's savings guarantee will, at a minimum, cover annual project financing costs (principal and interest). In addition, it states that all annual ESCO service fees for maintenance will also be paid from savings.

ESCO has structured the Energy and Cost Savings Guarantee referred to in Section 4.1 above, to be sufficient to include any and all annual payments required to be made by the Institution in connection with financing/purchasing the Equipment to be installed by ESCO under this Contract as set forth in **Schedule N (Annual Financing Agreement and Payment Schedule)**. Actual energy and operations savings achieved by ESCO through the operation of Equipment and performance of services by ESCO shall be sufficient to cover any and all annual fees to be paid by Institution to ESCO for the provision of services as set forth and in accordance with the provisions of **Schedules D (Compensation to ESCO) and J (ESCO's Maintenance Responsibilities)**.

Section 4.4. Billing Information Procedure

Sections 4.4 & 4.5: These sections which deal with payment can be negotiated and structured to suit the needs of the Institution. It is, however, important to provide the ESCO with monthly utility bills and to do so in a timely manner. The project's billing schedule for on-going ESCO services can be set up on a monthly or quarterly basis.

Payments due to ESCO under this Section 4 shall be calculated each _____ in the following manner:

- (i) By the _____ day after receipt, Institution shall provide ESCO with copies of all energy bills for the Project Site(s) which it shall have received for the preceding month;
- (ii) Upon receipt of the required information, ESCO shall calculate the savings in accordance with the agreed-upon calculation formulae in **Schedule F (Savings Measurement and Verification Plan; Methodology to Adjust Baseline)**.
- (iii) Based upon paragraphs (i) and (ii) above, ESCO shall prepare and send to Institution a _____ invoice which shall set forth for each _____ the amounts of the energy and operations dollar savings calculated in accordance with **Schedule F (Savings Measurement and Verification Plan; Methodology to Adjust Baseline)** and for the services as provided for in **Schedule D (Compensation to ESCO for Annual Services)**. The invoice will set forth the total _____ payment due from Institution.

Section 4.5. Payment

Institution shall pay ESCO within _____ days of receipt of ESCO's invoice.

Section 4.6. Effective Date of Payment Obligation

Section 4.6: This section states that no ESCO fees for ongoing maintenance, monitoring or other services shall be paid until all equipment is installed and operating in accordance with the agreed upon Construction Schedule and Institution has approved the completed installation and signed the requisite Certificate of Acceptance—Installed Equipment.

Notwithstanding the above provisions in Section 4, Institution shall not be required to begin any payments to ESCO under this Contract unless and until all equipment installation is completed by ESCO in accordance with the provisions of **Section 6 (Construction and Equipment Installation; Approval)** and **Schedule H (Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment)**, and accepted by Institution as evidenced by the signed Certificate of Acceptance as set forth in **Exhibit III (ii) (Certificate of Acceptance—Installed Equipment)**, and unless and until said equipment is fully and properly functioning.

ARTICLE 5. FISCAL FUNDING

Section 5.1. Non-appropriation of Funds

Section 5.1: This section protects the Institution in the event no funds or insufficient funds are appropriated to cover the financial payments due to the ESCO under the terms of this Contract, in effect terminating the contract with no penalty to the Institution. This is a standard provision

in public sector performance contracting and is generally accepted by the ESCO industry since it is unlikely that funding for utilities (source of funds) would be withheld.

In the event no Institution or other funds or insufficient Institution or other funds are appropriated and budgeted, and funds are otherwise unavailable by any means whatsoever in any fiscal period for which payments are due ESCO under this Contract, then the Institution will, not less than █ days prior to end to such applicable fiscal period, in writing, notify the ESCO of such occurrence and this Contract shall terminate on the last day of the fiscal period for which appropriations were made without penalty or expense to the Institution of any kind whatsoever, except as to the portions of payments herein agreed upon for which Institution and/or other funds shall have been appropriated and budgeted or are otherwise available.

Section 5.2. Non-substitution

Section 5.2: In the rare event that funds were not appropriated or the Institution is in default, and to protect the ESCO, this provision prevents the Institution from securing funding for the same purposes for a period of one year following the termination of the contract.

In the event of a termination of this contract due to the non-appropriation of funds or in the event this Contract is terminated by ESCO due to a default by the Institution, the Institution agrees, to the extent permitted by state law, not to purchase, lease, rent, borrow, seek appropriations for, acquire or otherwise receive the benefits of any of the same and unique services performed by ESCO under the terms of this Contract for a period of three-hundred sixty five (365) calendar days following such default by Institution, or termination of this Contract due to non-appropriations.

ARTICLE 6. CONSTRUCTION SCHEDULE AND EQUIPMENT INSTALLATION; APPROVAL

Section 6.1. Construction Schedule; Equipment Installation

Section 6.1: It is important that the construction/installation phase of the project be managed in compliance with individual Institution requirements and the appropriate governing statutes. █ Since construction is just one component of the overall project, a separate construction contract may be desirable and in some cases necessary. The construction contract would then be referred to in the body of the contract and attached as an exhibit, appendix or other type of attachment. █ Another approach would be to consolidate the appropriate construction language for inclusion in the body of the final contract. █

Construction and equipment installation shall proceed in accordance with the construction schedule approved by Institution and attached as **Schedule G (Construction and Equipment Installation Schedule)**.

Section 6.2. Systems Startup and Equipment Commissioning

Section 6.2: This section requires the ESCO to conduct performance testing of the equipment as specified in its Commissioning Plan located in Schedule H, and verify the specified operating parameters to make certain the system is working properly. In most instances this activity occurs prior to the Institution's final acceptance of the project as fully installed, however, if any testing is negotiated to occur after project acceptance, language to that effect should be included here. It also requires the ESCO notify the Institution of when the testing will take place and gives the Institution (or its designee) the right to be present during all tests. Make sure the commissioning plan includes manufacturer's startup and performance sheets.

The ESCO shall conduct a thorough and systematic performance test of each element and total system of the installed Equipment in accordance with the procedures specified in **Schedule H (Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment)** and prior to acceptance of the project by the Institution as specified in **Exhibit III (i) (Certificate of Acceptance)**. Testing shall be designed to determine if the Equipment is functioning in accordance with both its published specifications and the Schedules to this Contract, and to determine if modified building systems, subsystems or components are functioning properly within the new integrated environment. The ESCO shall provide notice to the Institution of the scheduled test(s) and the Institution and/or its designees shall have the right to be present at any or all such tests conducted by ESCO and/or manufacturers of the Equipment. The ESCO shall be responsible for correcting and/or adjusting all deficiencies in systems and Equipment operations that may be observed during system commissioning procedures as specified in **Schedule H**. The Contractor shall be responsible for correcting and/or adjusting all deficiencies in Equipment operation that may be observed during system testing procedures. Prior to Institution acceptance ESCO shall also provide Institution with reasonably satisfactory documentary evidence that the Equipment installed is the Equipment specified in **Schedule A (Equipment to be Installed by ESCO)**.

ARTICLE 7. EQUIPMENT WARRANTIES

Article 7: This warranty provision requires all installed equipment be new and protected by appropriate written manufacturers warranties for a minimum of one year, covering parts and performance. It also requires warranties provide for the installation of only new parts (not used or reconditioned) during the warranty period. While equipment warranties will be transferred to the Institution after completed project installation, this provision makes the ESCO responsible for pursuing any necessary remedies during the warranty period. If the ESCO fails to exercise the warranty and damages occur, the ESCO is responsible for all costs of repair and any lost savings.

ESCO warrants that all equipment sold and installed as part of this Contract is new, will be materially free from defects in materials or workmanship, will be installed properly in a good and workmanlike manner, and will function properly for a period of one (1) year from the date of the Substantial Completion for the particular energy conservation measure if operated and maintained in accordance with the procedures established per building. Substantial Completion

shall be defined as the stage in the progress of the Work where the Work is sufficiently complete in accordance with the Contract Documents so that the Institution can utilize and take beneficial use of the Work for its intended use or purpose. Substantial Completion does not occur until the Equipment or system has been commissioned, accepted, and the “Substantial Completion” form fully executed.

After the warranty period, ESCO shall have no responsibility for performing maintenance, repairs, or making manufacturer warranty claims relating to the Equipment, except as provided in **Schedule J (ESCO’s Maintenance Responsibilities)**.

ESCO further agrees to assign to Institution all available manufacturer’s warranties relating to the Equipment and to deliver such written warranties and which shall be attached and set forth as **Exhibit IV (Equipment Warranties)**; pursue rights and remedies against the manufacturers under the warranties in the event of Equipment malfunction or improper or defective function, and defects in parts, workmanship and performance. ESCO shall, during the warranty period, notify the Institution whenever defects in Equipment parts or performance occur which give rise to such rights and remedies and those rights and remedies are exercised by ESCO. During this period, the cost of any risk of damage or damage to the Equipment and its performance, including damage to property and equipment of the Institution or the Project Site(s), due to ESCO’s failure to exercise its warranty rights shall be borne solely by ESCO.

All warranties, to the extent transferable, shall be transferable and extend to the Institution. The warranties shall specify that only new, not reconditioned, parts may be used and installed when repair is necessitated by malfunction. All extended warranties shall be addressed as the property of the owner and appropriately documented and titled.

Notwithstanding the above, nothing in this Section shall be construed to alleviate/relieve the ESCO from complying with its obligations to perform under all terms and conditions of this Contract and as set forth in all attached Schedules.

ARTICLE 8. TRAINING BY ESCO

Article 8: In many performance contracts the training of facility personnel is often conducted prior to acceptance by the Institution of the completed installation. There are occasions, however, where it may be necessary to conduct training after project acceptance, which can be noted and included in the appropriate schedule. If there are charges for unscheduled training, such charges should be noted in this section.

The ESCO shall conduct the training program described in **Schedule M (ESCO's Training Responsibilities)** hereto. The training specified in **Schedule M (ESCO’s Training Responsibilities)** must be completed prior to acceptance of the Equipment installation. The ESCO shall provide ongoing training whenever needed with respect to updated or altered Equipment, including upgraded software. Such training shall be provided at no charge to the Institution and shall have no effect on prior acceptance of Equipment installation.

ARTICLE 9. PERMITS AND APPROVALS; COORDINATION

Section 9.1. Permits and Approvals

Section 9.1: This standard construction provision requires the ESCO comply with all code requirements, pay all associated permit fees and provide the Institution with copies of each permit and license required to do the work. The Institution agrees to assist the ESCO to the best of its ability to obtain all required permits and approvals.

Institution shall use its best efforts to assist ESCO in obtaining all necessary permits and approvals for installation of the Equipment. In no event shall Institution, however, be responsible for payment of any permit fees. The equipment and the operation of the equipment by ESCO shall at all times conform to all federal, state and local code requirements. ESCO shall furnish copies of each permit or license which is required to perform the work to the Institution before the ESCO commences the portion of the work requiring such permit or license.

Section 9.2. Coordination During Installation

Section 9.2: This standard provision directs the Institution and ESCO to coordinate the equipment installation activities to not interfere with the Institution's business activities. If an installation will require interference, the ESCO must first obtain the Institution's written approval to proceed. If a facility generates revenue for the Institution (e.g. civic center, theater, arena etc.) and scheduled revenue-producing activities are interrupted due to the fault of the ESCO, either during project installation or operation, then a provision for the collection of damages may be negotiated.

The Institution and ESCO shall coordinate the activities of ESCO's equipment installers with those of the Institution, its employees, and agents. ESCO shall not commit or permit any act which will interfere with the performance of business activities conducted by the Institution or its employees without prior written approval of the Institution.

ARTICLE 10. PERFORMANCE BY ESCO

Section 10: This section directs the ESCO to protect the Project Site(s) and its contents to repair and restore to the original condition any damage caused by the ESCO in connection with this contract. Any costs incurred to correct such damage are to be paid by the ESCO. As well, the ESCO is solely responsible for the technical professional accuracy of all work performed under this Contract including work done by subcontractors or others.

Section 10.1. Corrective Action; Accuracy of the Services

ESCO shall perform all tasks/phases under the Contract, including construction, and install the Equipment in such a manner so as not to harm the structural integrity of the buildings or their operating systems and so as to conform to the standards set forth in **Schedule I (Standards of Comfort)** and the construction schedule specified in **Schedule G (Construction and Installation Schedule)**. ESCO shall repair and restore to its original condition any area of damage caused by ESCO's performance under this Contract. The Institution reserves the right to review the work performed by ESCO and to direct ESCO to take certain corrective action if, in the opinion of the Institution, the structural integrity of the Project Site(s) or its operating system is or will be harmed. All costs associated with such corrective action to damage caused by ESCO's performance of the work shall be borne by ESCO.

ESCO shall remain responsible for the professional and technical accuracy of all services performed, whether by the ESCO or its subcontractors or others on its behalf, throughout the term of this Contract.

Section 10.2. Annual Reporting Requirements; Annual ENERGY STAR Rating

At the end of each year during the guarantee period as specified in **Schedule C (Energy and Water Cost Savings Guarantee)** and no later than ninety (90) days thereafter, the ESCO shall complete and submit the data required in **Schedule R (Annual Reporting Requirements)** . The ESCO shall provide an ENERGY STAR rating for each eligible facility for each year of the guarantee period if applicable.

ARTICLE 11: ENVIRONMENTAL REQUIREMENTS

Section 11.1. Excluded Material and Activities

Institution recognizes that in connection with the installation and/or service or maintenance of Equipment at Institution's Project Site(s), ESCO may encounter, but is not responsible for, any work relating to (i) asbestos, materials containing asbestos, or the existence, use, detection, removal, containment or treatment thereof, (ii) fungus (any type of form of fungi, including mold or mildew, and myotoxins, spores, scents or by-products produced or released by fungi), (iii) incomplete or damaged work or systems or code violations that may be discovered during or prior to the work of this agreement, or (iv) pollutants, hazardous wastes, hazardous materials, contaminants other than those described in this Section below (collectively "Hazardous Materials"), or the storage, handling, use, transportation, treatment, or the disposal, discharge, leakage, detection, removal, or containment thereof. The materials and activities listed in the foregoing sentence are referred to as "Excluded Materials and Activities". Institution agrees that if performance of work involves any Excluded Materials and Activities, Institution will perform or arrange for the performance of such work and shall bear the sole risk and responsibility therefore. In the event ESCO discovers Hazardous or Excluded Materials, ESCO shall immediately cease work, remove all ESCO personnel or subcontractors from the site, and notify the Institution. The Institution shall be responsible to handle such Materials at its expense. ESCO shall undertake no further work on the Project Site(s) except as authorized by the

Institution in writing. Notwithstanding anything in this Contract to the contrary, any such event of discovery or remediation by the Institution shall not constitute a default by the Institution. In the event of such stoppage of work by ESCO, the Time for Completion of Work will be automatically extended by the amount of time of the work stoppage and any additional costs incurred by ESCO as a result will be added by Change Order.

ESCO shall be responsible for any hazardous or other materials, including, without limitation, those listed in this **Section 11.1** that it may bring to the Project Site(s).

Section 11.2. Polychlorinated Biphenyl (PCB) Ballasts; Mercury Lamps

ESCO will enter into an agreement with an approved PCB ballast disposal ESCO who will provide an informational packet, packing receptacles and instructions, labels and shipping materials, transportation, and recycling or incineration services for PCB ballasts. All capacitors and asphalt potting compound materials removed from Institution's PCB ballasts will be incinerated in a federally approved facility. After proper disposal, a Certificate of Destruction will be provided by the approved facility to Institution. ESCO's responsibility shall be for the proper and legal management of any of Institution's PCB ballasts removed as a result of the installation of the Equipment and shall be limited only until said PCB ballasts are loaded onto an approved PCB ballast disposal ESCO's vehicle for transportation.

ESCO will enter into an agreement with an approved lamp disposal company who will provide approved containers, materials required to label, transportation, recycling or incineration in accordance with EPA requirements, and a copy of the manifest.

Institution agrees to sign manifests of ownership for all PCB ballasts and mercury lamps removed from the Project Site(s).

ARTICLE 12. OWNERSHIP OF CERTAIN PROPRIETARY RIGHTS; EXISTING EQUIPMENT

Section 12.1. Ownership of Certain Proprietary Property Rights

Section 12.1: This provision addresses the ESCO's proprietary rights over customized (or exclusive) software used in an energy management system which may control, manage and perform other functions in conjunction with the project (there may other technical designs, processes, formulas etc., which this provision would cover). Of particular importance is the stipulation that grants the Institution a continuing license (at no charge) to use and operate the project without violating any ESCO's proprietary rights.

Institution shall not, by virtue of this Contract, acquire any interest in any formulas, patterns, devices, secret inventions or processes, copyrights, patents, other intellectual or proprietary rights, or similar items of property which are or may be used in connection with the Equipment. The ESCO shall grant to the Institution a perpetual, irrevocable royalty-free license for any and

all software or other intellectual property rights necessary for the Institution to continue to operate, maintain, and repair the Equipment in a manner that will yield guaranteed utility consumption reductions for the specified contract term. ESCO shall not be liable for providing new versions of software or other enhancements if or unless such new versions or enhancements are necessary to achieve the guaranteed utility consumption reductions.

Section 12.2. Ownership of Existing Equipment

Section 12.2: This provision states that the Institution has ownership of all existing equipment and that the ESCO shall notify the Institution in writing of what equipment and materials are to be replaced. If the Institution chooses to keep the equipment to be replaced, the ESCO will be notified and the Institution responsible for identifying the location of where the property is to be stored or relocated. The ESCO is responsible for all equipment and materials to be disposed. The exception to this is the treatment of any hazardous or environmentally sensitive materials.

Ownership of the equipment and materials presently existing at the Project Site(s) at the time of execution of this Contract shall remain the property of the Institution even if it is replaced or its operation made unnecessary by work performed by ESCO pursuant to this Contract. If applicable, ESCO shall advise the Institution in writing of all equipment and materials to be replaced at the Project Site(s) and the Institution shall within ____ days designate in writing to the ESCO which equipment and materials that should not be disposed of off-site by the ESCO. It is understood and agreed to by both Parties that the Institution shall be responsible for and designate the location and storage for any equipment and materials that should not be disposed of off-site. The ESCO shall be responsible for the disposal of all equipment and materials designated by the Institution as disposable off-site in accordance with all applicable laws and regulations regarding such disposal.

ARTICLE 13. LOCATION AND ACCESS

Article 13: This provision states the Institution's responsibility for providing adequate space and protection for the installed equipment and authorizes the ESCO's access to the facility to perform routine and emergency operations.

ESCO acknowledges that there exists sufficient space on the Project Site(s) for the installation and operation of the Equipment. Institution shall take reasonable steps to protect such Equipment from harm, theft and misuse during the term of this Contract. Institution shall provide access to the Project Site(s) for ESCO to perform any function related to this Contract during regular business hours, or such other reasonable hours as may be requested by ESCO and acceptable to the Institution. ESCO shall be granted immediate access to make emergency repairs or corrections as it may, in its discretion, determine are needed. The ESCO's access to Project Site(s) to make emergency repairs or corrections as it may determine are needed shall not be unreasonably restricted by the Institution. ESCO shall immediately notify the Institution when emergency action is taken and follow up with written notice with three (3) business days specifying the action taken, the reasons therefore, and the impact upon the Project Site(s), if any.

ARTICLE 14. EQUIPMENT SERVICE

Section 14.1. Actions by ESCO

Section 14.1: This section refers to the maintenance and service responsibilities of each party as they are specified in Schedules J and D. It also states that if the Institution is at fault for causing additional maintenance or repair to the equipment, then the Institution will be charged by the ESCO for the cost of the required maintenance or repair.

ESCO shall provide all service, repairs, and adjustments to the Equipment installed under terms of this Contract pursuant to **Schedule J (ESCO's Maintenance Responsibilities)**. Institution shall incur no cost for Equipment service, repairs, and adjustments, except as set forth in **Schedule D (Compensation to ESCO for Annual Services)**, provided, however, that when the need for maintenance or repairs principally arises due to the negligence or willful misconduct of the Institution or any employee or other agent of Institution, and ESCO can so demonstrate such causal connection, ESCO may charge Institution for the actual cost of the maintenance or repair insofar as such cost is not covered by any warranty or insurance proceeds.

Section 14.2. Malfunctions and Emergencies

Section 14.2: This section requires the Institution to notify the ESCO within a specified number of hours of actually knowing about any situation that impacts the performance of the equipment. As described here, the impacts cover both pre-existing energy related equipment and the newly installed equipment. The impacts defined here include equipment malfunction or modification, interruption of power supply or any emergency situation which may affect the Energy and Cost Savings Guarantee. If such an impact is known by the Institution to have occurred and the Institution delays in notifying the ESCO and doesn't correct the situation, it will be treated as a Material Change and the baseline will be adjusted accordingly. If the Institution makes an effort to assess the situation and incorrectly determines it doesn't have an impact, then the ESCO will not fault the Institution, although an adjustment to the baseline may still be warranted.

Institution shall use its best efforts to notify the ESCO or its designated subcontractors within 24 hours after the Institution's actual knowledge and occurrence of: (i) any malfunction in the operation of the Equipment or any preexisting energy related equipment that might materially impact upon the guaranteed energy savings, (ii) any interruption or alteration to the energy supply to the Project Site(s), or (iii) any alteration or modification in any energy-related equipment or its operation.

Where Institution exercises due diligence in attempting to assess the existence of a malfunction, interruption, or alteration it shall be deemed not at fault in failing to correctly identify a such conditions as having a material impact upon the guaranteed energy savings. Institution shall notify ESCO within twenty-four (24) hours upon its having actual knowledge of any emergency condition affecting the Equipment. ESCO shall respond or cause its designee(s) shall respond

within [REDACTED] hours and shall promptly proceed with corrective measures. Any telephonic notice of such conditions by Institution shall be followed within three business days by written notice to ESCO from Institution. If Institution unreasonably delays in so notifying ESCO of a malfunction or emergency, and the malfunction or emergency is not otherwise corrected or remedied, ESCO may charge Institution for its loss, due to the delay, associated with the guaranteed savings under this Contract for the particular time period, provided that ESCO is able to show the direct causal connection between the delay and the loss.

The ESCO will provide a written record of all service work performed. This record will indicate the reason for the service, description of the problem and the corrective action performed.

Section 14.3. Actions by Institution

Section 14.3: This section states the Institution may not make any changes to the operation and maintenance of the equipment without the prior written approval of the ESCO unless otherwise indicated in Schedule K or if there is an emergency and the ESCO can't be reasonably notified. In the case of such emergency, the Institution should follow instructions provided by the ESCO for emergency action.

Institution shall not move, remove, modify, alter, or change in any way the Equipment or any part thereof without the prior written approval of ESCO except as set forth in **Schedule K (Institution's Maintenance Responsibilities)**. Notwithstanding the foregoing, Institution may take reasonable steps to protect the Equipment if, due to an emergency, it is not possible or reasonable to notify ESCO before taking any such actions. In the event of such an emergency, Institution shall take reasonable steps to protect the Equipment from damage or injury and shall follow instructions for emergency action provided in advance by ESCO. Institution agrees to maintain the Project Site(s) in good repair and to protect and preserve all portions thereof which may in any way affect the operation or maintenance of the Equipment.

ARTICLE 15. MODIFICATION, UPGRADE OR ALTERATION OF THE EQUIPMENT

Section 15.1. Modification of Equipment

During the Term of this Contract, Institution will not, without the prior written consent of ESCO, affix or install any accessory Equipment or device on any of the Equipment if such addition will change or impair the originally intended functions, value or use of the Equipment without ESCO's prior written approval, which shall not be unreasonably withheld.

Section 15.2. Upgrade or Alteration of Equipment

Section 15: This section describes the terms and conditions under which the ESCO may make changes to the equipment, operating procedures or take other energy savings actions. If such changes are implemented during any time during the contract they must be described in a [REDACTED]

supplemental schedule and be approved by the Institution. As well, any equipment replaced is required to be new and have the potential to produce at least as much or more savings. If computer software is updated, the licensing provisions of Section 12.1 still apply.

ESCO shall at all times have the right, subject to Institution's prior written approval, which approval shall not be unreasonably withheld, to change the Equipment, revise any procedures for the operation of the Equipment or implement other energy saving actions in the Project Site(s), provided that: (i) the ESCO complies with the standards of comfort and services set forth in **Schedule I** herein; (ii) such modifications or additions to, or replacement of the Equipment, and any operational changes, or new procedures are necessary to enable the ESCO to achieve the guaranteed energy and cost savings at the Project Site(s) and; (iii) any cost incurred relative to such modifications, additions or replacement of the Equipment, or operational changes or new procedures shall be the responsibility of the ESCO.

All modifications, additions or replacements of the Equipment or revisions to operating or other procedures shall be described in a supplemental Schedule(s) to be provided to the Institution for approval, which shall not be unreasonably withheld, provided that any replacement of the Equipment shall, unless otherwise agreed, be new and have equal or better potential to reduce energy consumption at the Project Site(s) than the Equipment being replaced. The ESCO shall have the right to update any and all software to be used in connection with the Equipment in accordance with the provisions of **Section 12.1 (Ownership of Certain Proprietary Rights)** and **Schedule J (ESCO's Maintenance Responsibilities)**. All replacements of and alterations or additions to the Equipment shall become part the Equipment described in **Schedule A (Equipment to be Installed by ESCO)** and shall be covered by the provisions and terms of **Section 6 (Construction Schedule and Equipment Installation; Approval)**.

ARTICLE 16. STANDARDS OF COMFORT

Article 16: This section references the standards of comfort contained in Schedule I which the ESCO is contractually liable to maintain throughout the term of the contract. These standards are negotiated between the ESCO and Institution to reflect realistic ranges of heating, cooling and hot water temperatures, lighting levels, chilled water requirements, and other specified comfort and operating parameters to be maintained.

ESCO will maintain and operate the Equipment in a manner which will provide the standards of heating, cooling, ventilation, hot water supply, and lighting quality and levels as described in **Schedule I (Standards of Comfort)**. During the term of this Contract, ESCO and Institution will maintain, according to **Schedule J (ESCO's Maintenance Responsibilities)** and **Schedule K (Institution's Maintenance Responsibilities)**, and operate the Equipment in a manner that will provide the standards of comfort and levels of operation as described in **Schedule I**.

ARTICLE 17. MATERIAL CHANGES

Article 17: This section defines the term "Material Change" which covers any condition other than weather that affects building energy use by more than the negotiated percentage (see above discussion). It is typical for the percent of deviation to be negotiated as a value ranging between 2% and 5% based on aggregate consumption costs. The lower value (2%) may be appropriate for large facilities (over \$20,000/month utility bills) and the higher value (5%) may be appropriate for small facilities (less than \$5,000/month utility bills).

Section 17.1. Material Change Defined

A Material Change shall include any change in or to the Project Site(s), whether structural, operational or otherwise in nature which reasonably could be expected, in the judgment of the Institution, to increase or decrease annual energy consumption in accordance with the provisions and procedures set forth in **Schedule E (Baseline Energy Consumption)** and **Schedule F (Savings Measurement and Verification Plan; Methodology to Adjust Baseline)** by at least ___% after adjustments for climatic variations. Actions by the Institution which may result in a Material Change include but are not limited to the following:

- (i) manner of use of the Project Site(s) by the Institution; or
- (ii) hours of operation for the Project Site(s) or for any equipment or energy using systems operating at the Project Site(s); or
- (iii) Permanent changes in the comfort and service parameters set forth in **Schedule I (Standards of Comfort)**; or
- (iv) occupancy of the Project Site(s); or
- (v) structure of the Project Site(s); or
- (vi) types and quantities of equipment used at the Project Site(s) or
- (vii) modification, renovation or construction at the Project Site(s); or
- (viii) the Institution's failure to provide maintenance of and repairs to the Equipment in accordance with **Schedule K (Institution's Maintenance Responsibilities)**; or
- (ix) any other conditions other than climate affecting energy use at the Project Site(s) including but not limited to the replacement, addition or removal of energy and water consuming devices whether plug in or fixed assets,
- (x) casualty or condemnation of the Project Site(s) or Equipment, or
- (xi) changes in utility provider or utility rate classification, or
- (xii) any other conditions other than climate affecting energy or water use at the Project Site(s).
- (xiii) Modifications, alterations or overrides of the energy management system schedules or hours of operation, set back/start up or holiday schedules.

Section 17.2. Reported Material Changes; Notice by Institution

Section 17.2: This section requires the Institution to notify the ESCO in writing if there are any actual or planned changes to the facility which would effect energy consumption by more than the specified percentage. In the event of an emergency or situation that would prevent advance notification, the Institution has a specified number of hours to inform the ESCO that a Material Change has occurred.

The Institution shall use its best efforts to deliver to the ESCO a written notice describing all actual or proposed Material Changes in the Project Site(s) or in the operations of the Project Site(s) at least [] days before any actual or proposed Material Change is implemented or as soon as is practicable after an emergency or other unplanned event. Notice to the ESCO of Material Changes which result because of a bona fide emergency or other situation which precludes advance notification shall be deemed sufficient if given by the Institution within [] hours after having actual knowledge that the event constituting the Material Change occurred or was discovered by the Institution to have occurred.

Section 17.3. Other Adjustments

Section 17.3: This section states that if all building conditions and operations stay the same, then energy consumption will not vary more than the negotiated percentage during any month when compared to the baseline use for that month and after adjustments for weather are made. See above discussion. In the event such a variation occurs, the ESCO will try to determine the cause of the deviation and report its findings to the Institution. The ESCO and Institution will then determine what adjustments will be made to the baseline as described in Schedule F (Savings Measurement and Verification Plan; Methodology to Adjust Baseline).

As agreed in Section 17.1 Institution will alert ESCO of materials changes as known. Both parties have a vested interest in meeting the guaranteed savings of the Contract. As such, the ESCO will work with Institution to investigate, identify and correct any changes that prevent the guaranteed savings from being realized. As a result of such investigation, ESCO and Institution shall determine what, if any, adjustments to the baseline will be made in accordance with the provisions set forth in **Schedule F (Savings Measurement and Verification Plan; Methodology to Adjust Baseline)** and **Schedule E (Baseline Energy Consumption)**. Any disputes between the Institution and the ESCO concerning any such adjustment shall be resolved in accordance with the provisions of Schedule O (*Alternative Dispute Resolution Procedures*) hereto.

ARTICLE 18. PROPERTY/CASUALTY/INSURANCE; INDEMNIFICATION

Article 18: This section needs to reflect the individual Institution's standard requirements with regard to insurance and indemnification.

Section 18.1. At all times during the term of this Contract, ESCO shall maintain in full force and effect, at its expense: (1) Workmen's Compensation Insurance sufficient to cover all of the employees of (ESCO) working to fulfill this Contract, and (2) Casualty and Liability Insurance on the Equipment and Liability Insurance for its employees and the possession, operation, and service of the Equipment. The limits of such insurance shall be not less than
\$ [] for injury to or death of one person in a single occurrence and
\$ [] for injury to or death of more than one person in a single occurrence and

\$ [REDACTED] for a single occurrence of property damage. Such policies shall name the Institution as an additional insured.

Prior to commencement of work under this Contract, ESCO will be required to provide Institution with current certificates of insurance specified above. These certificates shall contain a provision that coverages afforded under the policies will not be canceled or changed until at least thirty (30) days' prior written notice has been given to Institution.

Section 18.2. ESCO shall be responsible for (i) any damage to the Equipment or other property on the Project Site(s) and (ii) any personal injury where such damage or injury occurs as a result of ESCO's performance under this Contract.

Section 18.3. ESCO shall save and hold harmless Institution and its officers, agents and employees or any of them from any and all claims, demands, actions or liability of any nature based upon or arising out of any services performed by ESCO, its agents or employees under this Contract.

Section 18.4. Neither party shall be liable for any special, incidental, indirect, punitive or consequential damages, arising out of or in connection with this Contract. Further, the liability of either party under this Contract shall not exceed the Contract Sum in the aggregate.

ARTICLE 19. CONDITIONS BEYOND CONTROL OF THE PARTIES

If a party ("performing party") shall be unable to reasonably perform any of its obligations under this Contract due to acts of God, insurrections or riots, or similar events, this Contract shall at the other party's option (i) remain in effect but said performing party's obligations shall be suspended until the said events shall have ended; or, (ii) be terminated upon ten (10) days notice to the performing party, in which event neither party shall have any further liability to the other.

ARTICLE 20. EVENTS OF DEFAULT

Section 20.1. Events of Default by Institution

Each of the following events or conditions shall constitute an "Event of Default" by Institution:

- (i) any failure by Institution to pay ESCO any sum due for a service and maintenance period of more than [REDACTED] days after written notification by ESCO that Institution is delinquent in making payment and provided that ESCO is not in default in its performance under the terms of this Contract; or
- (ii) any other material failure by Institution to perform or comply with the terms and conditions of this Contract, including breach of any covenant contained herein, provided that such failure continues for [REDACTED] days after notice to Institution demanding that such failures to perform be cured or if such cure cannot be effected in [REDACTED] days, Institution

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- shall be deemed to have cured default upon the commencement of a cure within [REDACTED] days and diligent subsequent completion thereof;
- (iii) any representation or warranty furnished by Institution in this Contract which was false or misleading in any material respect when made.

Section 20.2. Events of Default by ESCO

Each of the following events or conditions shall constitute an "Event of Default" by ESCO:

- (iv) the standards of comfort and service set forth in **Schedule I (Standards of Comfort)** are not provided due to failure of ESCO to properly design, install, maintain, repair or adjust the Equipment except that such failure, if corrected or cured within [REDACTED] days after written notice by Institution to ESCO demanding that such failure be cured, shall be deemed cured for purposes of this Contract.
- (v) any representation or warranty furnished by ESCO in this Contract is false or misleading in any material respect when made;
- (vi) failure to furnish and install the Equipment and make it ready for use within the time specified by this Contract as set forth in **Schedule A (Equipment to be Installed by ESCO)** and **Schedule G (Construction and Installation Schedule)**;
- (vii) provided that the operation of the facility is not adversely affected and provided that the standards of comfort in **Schedule I (Standards of Comfort)** are maintained, any failure by ESCO to perform or comply with the terms and conditions of this Contract, including breach of any covenant contained herein except that such failure, if corrected or cured within [REDACTED] days after written notice by the Institution to ESCO demanding that such failure to perform be cured, shall be deemed cured for purposes of this Contract;
- (viii) any lien or encumbrance upon the equipment by any subcontractor, laborer or materialman of ESCO;
- (ix) the filing of a bankruptcy petition whether by ESCO or its creditors against ESCO which proceeding shall not have been dismissed within [REDACTED] days of its filing, or an involuntary assignment for the benefit of all creditors or the liquidation of ESCO.
- (x) failure by the ESCO to pay any amount due the Institution or perform any obligation under the terms of this Contract or the Energy and Cost Savings Guarantee as set forth in **Schedule C (Energy and Cost Savings Guarantee)**.

ARTICLE 21. REMEDIES UPON DEFAULT

Section 21.1. Remedies upon Default by Institution

If an Event of Default by Institution occurs, ESCO may, without a waiver of other remedies which exist in law or equity, elect one of the following remedies:

- (i) exercise all remedies available at law or in equity or other appropriate proceedings including bringing an action or actions from time to time for recovery of amounts due

and unpaid by Institution, and/or for damages which shall include all costs and expenses reasonably incurred in exercise of its remedy;

Section 21.2. Remedies Upon Default by ESCO

In the Event of Default by ESCO, Institution shall have the choice of either one of the following remedies in law or equity:

- (i) exercise and any all remedies at law or equity, or institute other proceedings, including, without limitation, bringing an action or actions from time to time for specific performance, and/or for the recovery of amounts due and unpaid and/or for damages, which shall include all costs and expenses reasonably incurred, including attorney's fees;

ARTICLE 22. ASSIGNMENT

The ESCO acknowledges that the Institution is induced to enter into this Contract by, among other things, the professional qualifications of the ESCO. The ESCO agrees that neither this Contract nor any right or obligations hereunder may be assigned in whole or in part to another firm, without the prior written approval of the Institution.

Section 22.1. Assignment by ESCO

Section 22.1: This assignment provision first acknowledges that the Institution selected the ESCO for its unique expertise and qualifications to perform the services specified in the contract. The ESCO may not assign this contract to another ESCO without the written approval of the Institution and any ESCO assigned this contract must fully comply with all terms and conditions. In addition, the ESCO and any assignee remain contractually liable to the Institution for fulfilling all of the ESCO's obligations as specified in the contract.

The ESCO may, with prior written approval of the Institution, which consent shall not be unreasonably withheld, delegate its duties and performance under this Contract, and/or utilize ESCOs, provided that any assignee(s), delegee(s), or ESCO(s) shall fully comply with the terms of this Contract. Notwithstanding the provisions of this paragraph, the ESCO shall remain jointly and severally liable with its assignees(s), or transferee(s) to the Institution for all of its obligations under this Contract.

Section 22.2. Assignment by Institution

Section 22.2: In turn, this provision allows the Institution to transfer or assign this contract to a new building owner or occupant. The Institution and its assignee, however, still remain responsible to the ESCO for the Institution's obligations as specified in the contract.

Institution may transfer or assign this Contract and its rights and obligations herein to a successor or purchaser of the Buildings or an interest therein. The Institution shall remain jointly and

severally liable with its assignees or transferees to the ESCO for all of its obligations under this Contract.

ARTICLE 23. REPRESENTATIONS AND WARRANTIES

Article 23: This boilerplate provision states that each party has the requisite authority and ability to enter into this contract.

Each party warrants and represents to the other that:

- (i) it has all requisite power, authority, licenses, permits, and franchises, corporate or otherwise, to execute and deliver this Contract and perform its obligations hereunder;
- (ii) its execution, delivery, and performance of this Contract have been duly authorized by, or are in accordance with, its organic instruments, and this Contract has been duly executed and delivered for it by the signatories so authorized, and it constitutes its legal, valid, and binding obligation;
- (iii) its execution, delivery, and performance of this Contract will not breach or violate, or constitute a default under any Contract, lease or instrument to which it is a party or by which it or its properties may be bound or affected; or
- (iv) it has not received any notice, nor to the best of its knowledge is there pending or threatened any notice, of any violation of any applicable laws, ordinances, regulations, rules, decrees, awards, permits or orders which would materially and adversely affect its ability to perform hereunder.

ARTICLE 24. ADDITIONAL REPRESENTATIONS OF THE PARTIES

Article 24: These additional representations address several areas specific to the performance contract. The Institution certifies it has or will provide the ESCO will all energy and energy-related records and all future records to be provided will be truthful and accurate. The Institution also declares it has not entered into any leases or service contracts relating to energy equipment or servicing of pre-existing equipment and will notify the ESCO within a specified period of time if it does so.

As well, the ESCO certifies that before beginning work under this contract it will: have become licensed to business in the state; provide proof of required insurance and bonds; give Institution access to all document relating to the project (including all contracts and subcontracts) upon request; use licensed and qualified subcontractors; and is financially able to complete the project and perform under the terms of this contract. In addition, the ESCO certifies that the equipment will meet or exceed the functional design tests performed prior to Institution acceptance and the installed equipment with be compatible with existing equipment and building systems.

Institution hereby warrants, represents and promises that:

-
- (i) it has provided or shall provide timely to ESCO, all records relating to energy usage and energy-related maintenance of Project Site(s) requested by ESCO and the information set forth therein is, and all information in other records to be subsequently provided pursuant to this Contract will be true and accurate in all material respects; and
 - (ii) it has not entered into any leases, contracts or Contracts with other persons or entities regarding the leasing of energy efficiency equipment or the provision of energy management services for the Project Site(s) or with regard to servicing any of the energy related equipment located in the Project Site(s). Institution shall provide ESCO with copies of any successor or additional leases of energy efficiency equipment and contracts for management or servicing of preexisting equipment at Project Site(s) which may be executed from time to time hereafter within [REDACTED] days after execution thereof.

ESCO hereby warrants, represents and promises that:

- (i) before commencing performance of this Contract:
 - (a) it shall have become licensed or otherwise permitted to do business in the State of [REDACTED]
 - (b) it shall have provided proof and documentation of required insurance and bonds pursuant to this Contract;
- (ii) it shall make available, upon reasonable request, all documents relating to its performance under this Contract, including all contracts and subcontracts entered into;
- (iii) it shall use qualified subcontractors who are qualified, licensed and bonded in this state to perform the work so subcontracted pursuant to the terms hereof;
- (iv) The Equipment will meet or exceed the provisions set forth in **Section 6.2 (Systems Start Up and Equipment Commissioning)** and in **Schedule H (Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment)**.
- (v) The Equipment is or will be compatible with all other Project Site(s) mechanical and electrical systems, subsystems, or components with which the Equipment interacts, and that, as installed, neither the Equipment nor such other systems, subsystems, or components will materially adversely affect each other as a direct or indirect result of Equipment installation or operation;
- (v) that it is financially solvent, able to pay its debts as they mature and possessed of sufficient working capital to complete the Work and perform its obligations under this Contract.

ARTICLE 25. MICELLANEOUS DOCUMENTATION PROVISIONS

Section 25.1. Waiver of Liens, Construction Performance and Payment Bonds, Labor and Material Payment Bonds

Such executed bonds are incorporated herein by reference as **Exhibit I (Performance Bond)** and **Exhibit II (Labor and Material Payment Bond, if applicable)**.

Section 25.2. Further Documents

The parties shall execute and deliver all documents and perform all further acts that may be reasonably necessary to effectuate the provisions of this Contract.

Section 25.3 Institution's Responsibilities

This provision protects both the ESCO and the Institution by establishing a method for the ESCO to supervise the Institution's compliance with the scheduled routine and preventative maintenance activities to be performed by the Institution (either by in-house personnel or existing maintenance contract). This checklist should be developed for both the newly installed and pre-existing energy-related equipment.

(a) Methods of Operation by Institution

The parties acknowledge and agree that said Energy and Cost Savings would not likely be obtained unless certain procedures and methods of operation designed for energy and water conservation shall be implemented, and followed by Institution on a regular and continuous basis.

(b) Institution Maintenance Responsibilities

Institution agrees that it shall adhere to, follow and implement the energy conservation procedures and methods of operation to be set forth on **Schedule K (Institution Maintenance Responsibilities)**, to be attached hereto and made a part hereof after Institution's approval, such approval not to be unreasonably withheld, conditioned or delayed.

(c) Inspection of Project Site(s)

Institution agrees that ESCO shall have the right once a month, with prior notice, to inspect Project Site(s) to determine if Institution is complying, and shall have complied with its obligations as set forth in **Section 25.3(b)**. For the purpose of determining Institution's said compliance, the checklist to be set forth at **Schedule L (Facility Maintenance Checklist)** as completed and recorded by ESCO during its monthly inspections, shall be used to measure and record Institution's said compliance. Institution shall make the Project Site(s) available to ESCO for and during each monthly inspection, and shall have the right to witness each inspection and ESCO's recordation on the checklist. Institution may complete its own checklist at the same time. ESCO agrees to not interfere with the Institution operations during any monthly inspection.

Section 25.4. Waiver Of Liens

ESCO will obtain and furnish to Institution a Waiver of Liens from each vendor, material manufacturer and laborer in the supply, installation and servicing of each piece of Equipment.

ARTICLE 26: CONFLICTS OF INTEREST

Section 26.1 Conflicts of Interest

Conflicts of interest relating to this Contract are strictly prohibited. Except as otherwise expressly provided herein, neither party hereto nor any director, employee or agent of any party hereto shall give to or receive from any director, employee or agent of any other party hereto any gift, entertainment or other favor of significant value, or any commission, fee or rebate in connection with this Contract. Likewise, neither party hereto nor any director, employee or agent of either party hereto, shall without prior notification thereof to the other party enter into any business relationship with any director, employee or agent of the other party or of any affiliate of the other party, unless such person is acting for and on behalf of the other party or any such affiliate. A party shall promptly notify the other party of any violation of this section and any consideration received as a result of such violation shall be paid over or credited to the party against whom it was charged. Any representative of any party, authorized by that party, may audit the records of the other party related to this Contract, upon reasonable notice and during regular business hours including the expense records of the party's employees involved in this Contract, upon reasonable notice and during regular business hours, for the sole purpose of determining whether there has been compliance with this section.

ARTICLE 27. COMPLETE CONTRACT

This Contract, when executed, together with all Schedules attached hereto or to be attached hereto, as provided for by this Contract shall constitute the entire Contract between both parties and this Contract may not be amended, modified, or terminated except by a written Contract signed by the parties.

ARTICLE 28. APPLICABLE LAW

This Contract and the construction and enforceability thereof shall be interpreted under the laws of the State of .

ARTICLE 29. INTERPRETATION OF CONTRACT

The Institution shall have the authority to determine questions of fact that arise in relation to the interpretation of this Contract and the ESCO'S performance hereunder. However, such determinations are subject to the Alternative Dispute Resolution procedures as described in

Schedule O (Alternative Dispute Resolution Procedures). Unless the Parties agree otherwise, or the Work cannot be continued without a resolution of the question of fact, such determinations and Alternative Dispute Resolution procedures shall not be cause for delay of the Work. The ESCO shall proceed diligently with the performance of this Contract and in accordance with the Institution's decision whether or not the ESCO or anyone else has an active claim pending. Continuation of the Work shall not be construed as a waiver of any rights accruing to the ESCO.

ARTICLE 30. NOTICE

Any notice required or permitted hereunder shall be deemed sufficient if given in writing and delivered personally or sent by registered or certified mail, return receipt requested, postage prepaid, or delivered to a nationally recognized express mail service, charges prepaid, receipt obtained, to the address shown below or to such other persons or addresses as are specified by similar notice.

TO ESCO: *ESCO Name, Attention:, Complete address.*
Include COPY TO: information for ESCO, if applicable.

TO INSTITUTION: *Institution Name, Attention: Complete address.*
Include COPY TO: information for INSTITUTION, if applicable.

IN WITNESS WHEREOF, and intending to be legally bound, the parties hereto subscribe their names to this Contract by their duly authorized representatives on the date first above written.

(Corporate Seal)

ATTEST:

(INSTITUTION)

_____ By _____

(ESCO)

_____ By: _____

CONTRACT ATTACHMENT I: Schedules, Exhibits, and Appendices

SCHEDULE A. EQUIPMENT TO BE INSTALLED BY ESCO

Schedule A: This schedule should specify all of the newly installed equipment including manufacturer, quantity, location and warranties (you can also have a separate schedule for warranties). This schedule should also describe any modifications that may have been made to existing equipment, if applicable.

SCHEDULE B. DESCRIPTION OF PROJECT SITE(S); PRE-EXISTING EQUIPMENT INVENTORY

This schedule contains basic information about the condition of the Project Site(s) at the time of contract execution. Such information would include facility square footage, building construction, use, occupancy, hours of operation etc., and any special conditions that may exist.

The inventory is important to include for the purpose of identifying what equipment was in place and how it was configured at the time of contract execution. This schedule is important to the accurate establishment of baseline, savings measurement and may need to be referred to in the later years of the contract.

SCHEDULE C. ENERGY SAVING GUARANTEE

This schedule should fully describe all provisions and conditions of the energy saving guarantee provided by the ESCO. The guarantee should be defined in units of energy to be saved for the duration of the contract term. Reference to the annual reconciliation of achieved vs. guaranteed savings should be included (there is also language in the body of the contract regarding annual reconciliation See Section 4.2).

SCHEDULE D. COMPENSATION TO ESCO FOR ANNUAL SERVICES

This should contain the amount and frequency of any payments that may be made to the ESCO for maintenance, monitoring or other services negotiated as part of the contract. It should contain information about how the compensation is calculated (e.g. a percentage of savings above and beyond the guarantee, flat fee etc.), and if an annual inflation index is to be used to escalate fees over the duration of the contract term. An hourly fee structure will also likely be included to cover ESCO costs for any services provided beyond the scope agreed to at the time of contract execution.

SCHEDULE E. BASELINE ENERGY CONSUMPTION

The baseline energy consumption is the "yardstick" by which all savings achieved by the installed project will be measured. The methodology and all supporting documentation used to calculate the baseline should be located in this schedule including unit consumption and current utility rates for each fuel type. This schedule may also include baseline documentation regarding

other cost savings such as material savings (e.g. bulbs, ballasts, filters, chemicals etc.), and cost savings associated with the elimination of outside maintenance contracts.

SCHEDULE F. SAVINGS MEASUREMENT AND VERIFICATION PLAN; METHODOLOGY TO ADJUST BASELINE

This schedule contains a description of the energy savings measurement, monitoring and calculation procedures used to verify and compute the savings performance of the installed equipment will be contained in this schedule. This calculation will include a method to compare the level of energy that would have been consumed without the project (referred to as the "Baseline") with what amount of energy was actually consumed during a specific time period (monthly, quarterly, etc.). All methods of measuring savings including engineered calculations, metering, equipment run times, pre- and post-installation measurements, etc. should be explicitly described for all equipment installed.

Periodically (at least on an annual basis), the baseline will be adjusted to account for the prevailing conditions (e.g., weather, billing days, occupancy, etc.) during the measurement period. All methodologies used to account for any adjustments to the baseline needs to be clearly defined in this schedule.

SCHEDULE G. CONSTRUCTION AND INSTALLATION SCHEDULE

The timetables and milestones for project construction and installation should be contained in this schedule. If so desired, documentation of required insurance, subcontractor lists and any MBE/WBE required subcontracts may be included in this schedule or broken out into a separate schedule. NOTE: It is important that the construction/installation phase of the project be treated in compliance with individual institutional requirements and the appropriate governing statutes. Since construction is just one component of the overall project, a separate construction contract may be desirable and in some cases necessary. The construction contract would then be referred to in the body of the contract and attached as an exhibit, appendix or other type of attachment. Another approach would be to consolidate the appropriate construction language for inclusion in the body of the final contract. This will need to be decided as appropriate on a case-by-case basis.

SCHEDULE H. SYSTEMS START-UP AND COMMISSIONING OF EQUIPMENT; OPERATING PARAMETERS OF INSTALLED EQUIPMENT

This section should specify the performance testing procedures that will be used start-up and commission the installed equipment and total system. The schedule should also provide for the Institution to be notified of and present during all commissioning procedures. This schedule should contain a provision for the documentation of the client's attendance at the various tests and their approval that the tests followed the specified procedures and met or exceed the expected results.

The operating parameters should contain any specified parameters for the operation of the installed equipment such as temperature setbacks, equipment run times, load controlling specifications and other conditions for the operation of the equipment.

SCHEDULE I. STANDARDS OF COMFORT

The standards of comfort to be maintained for heating, cooling, lighting levels, hot water temperatures, humidity levels and/or any special conditions for occupied and unoccupied areas of the facility should be explicitly described in this schedule.

SCHEDULE J. ESCO'S MAINTENANCE RESPONSIBILITIES

A complete description of the ESCO's specific operations and maintenance responsibilities should be included in this schedule along with the time intervals for their performance of the stated O&M activities.

SCHEDULE K. INSTITUTION'S MAINTENANCE RESPONSIBILITIES

This schedule describes the operations and maintenance responsibilities that may be assigned to facility staff as agreed to by both parties. In some instances it will contain no more than a description of routine O&M currently being performed on existing energy consuming equipment in the facility. In other cases, facility staff may be used to provide some maintenance on the new equipment installed under the performance contract, with the ESCO providing any specialized services as needed.

SCHEDULE L. FACILITY MAINTENANCE CHECKLIST

This checklist is a method by which the ESCO may record and track the Institution's compliance with any of the maintenance procedures being performed by facility personnel. The checklist typically specifies simple list of tasks and the corresponding schedule for the performance of the prescribed procedures. Facility staff will complete the checklist and forward it to the ESCO, usually on a monthly basis. (This checklist is a very useful tool for both the ESCO and Institution to verify that the required maintenance activities are being performed at the scheduled intervals).

SCHEDULE M. ESCO'S TRAINING RESPONSIBILITIES

The description of the ESCO's training program or sessions for facility personnel should be contained in this schedule. As well, the duration and frequency of the specified training should also be included. Any provisions for on-going training, commitments to train newly hired facility personnel, and training with respect to possible future equipment or software upgrades should also be described. Any fees associated with the client's request for training beyond what the ESCO is contractually bound to provide should also be specified.

SCHEDULE N. FINANCING AGREEMENT AND PAYMENT SCHEDULE

This schedule contains a copy of the project financing agreement or terms and conditions of whatever financing vehicle is used (lease, COPs, bank financing etc.). An amortization and payment schedule should also be included as well as the progress payment disbursement schedule that will be used to pay the ESCO during the Interim Period (construction and installation) for the agreed-upon percentages of work completed.

SCHEDULE O. ALTERNATIVE DISPUTE RESOLUTION

This schedule describes methods for resolving disputes or claims relating to construction or the contract, wherein the parties agree to exercise good faith efforts (e.g., mediation, dispute resolution board) and to only use litigation as a last resort. This schedule is included as an alternative to costly binding arbitration and litigation.

SCHEDULE P. FINAL PROJECT COST & PROJECT CASH FLOW ANALYSIS

This schedule contains a spreadsheet depiction of the expected financial performance of the project throughout the entire contract term. The documentation should clearly identify all financial components of the project, including interest rates, current fuel prices, any escalation rates, guaranteed savings figures, ESCO compensation figures, cash-flow projections, and projected Net Present Value of any cumulative positive cash flow benefits to the Institution. Savings projections should be delineated by utility/fuel type and should identify ongoing annual service fees provided over the contract term. Project cost breakdowns should identify both hard costs (labor costs, subcontractor costs, cost of materials and equipment, and miscellaneous costs like permits, bonds taxes, insurance, mark-ups, overhead and profit, etc.).

SCHEDULE R. ANNUAL REPORTING REQUIREMENTS

This schedule summarizes the project and contains the energy, water and operational cost savings (in dollars and MMBTUs) for the annual reporting period. In addition, annual emission reductions and ENERGY STAR rating (if applicable) are also located in this schedule. This summary information is useful for tracking and reporting on annual project performance. (See attached Schedule R)

EXHIBITS

EXHIBIT I	PERFORMANCE BOND/CONSTRUCTION BOND
EXHIBIT II	LABOR AND MATERIAL PAYMENT BOND <i>if required</i>
EXHIBIT II (i)	CERTIFICATE OF ACCEPTANCE—TECHNICAL AUDIT
EXHIBIT II (ii)	CERTIFICATE OF ACCEPTANCE—INSTALLED EQUIPMENT

EXHIBIT III

EQUIPMENT WARRANTIES

APPENDICES

APPENDIX A	RFP FOR ESCO SOLICITATION
APPENDIX B	ESCO PROPOSAL
APPENDIX C	TECHNICAL ENERGY AUDIT REPORT

NOTE: THESE SCHEDULES CAN BE INCLUDED AS OPTIONAL AND INCLUDED OR COMBINED WITH OTHERS OR MAY BE CONTAINED IN THE AUDIT REPORT AS DESIRED.

PRE-EXISTING SERVICE CONTRACTS

Information regarding the scope and cost of pre-existing equipment service contracts should be located in this schedule. This gives both the client and ESCO information about how and when the existing equipment is being serviced. As well, if the ESCO is credited with any maintenance savings or is taking over any existing service contracts, the scopes and costs of such Contracts will useful in tracking the performance of the ESCO in providing the required services and documenting any attributable cost savings.

ENERGY SAVINGS PROJECTIONS

This schedule should contain the projected energy savings in units for each year of the contract. Oftentimes these projections are broken down on a measure by measure basis although some measures may be aggregated into general categories such as lighting or HVAC. If there are several buildings involved in the project, this schedule should contain projections for each facility, even though they may all be covered under a single guarantee.

FACILITY CHANGES CHECKLIST

A "Facility Changes Checklist" or other method may be provided by the ESCO for the Institution to notify the ESCO of any changes in the facility that could have an impact on energy consumption (e.g. occupancy, new equipment acquisition, hours of use etc.). This checklist is generally submitted on a monthly basis or quarterly basis.

CURRENT AND KNOWN CAPITAL PROJECTS AT FACILITY

If there are any current or planned capital projects to be implemented in the facility, that information should be contained in this schedule. This information could prove to be very useful in the out-years of the contract to avoid potential disputes over long-term energy savings performance, overall facility energy consumption and costs.

Schedule R- Annual Reporting Requirements

Institution Name/Institution Contact (Include Email and Phone Number)	
Facility Name/Facility Contact (Include Email and Phone Number)	
ESCO Name/ESCO Contact (Include Email and Phone Number)	
Total Square Footage of Project Site/Contract Start Date/Contract End Date	
Current Repayment Year (ex. Yr. 3/ 2005)	
Reporting Timeframe (ex. Jan 1-Dec. 31)	
Installed Project Cost (no financing costs)	
Total Contract Value of Guaranteed Savings	
Annual Value of Guaranteed Savings	
Measured Energy Savings	
Operational Savings	
Avoided Capital Cost (if applicable)	
Annual Dollar Value of Achieved Savings	
Total Annual Achieved Energy Savings (MMBTU)	
Electric	
Natural Gas	
Oil	
Coal	
Steam	
Other	
Annual Water Savings (kgal)	
Annual Avoided NOx Emissions (Tons)	
Annual Avoided SOx Emissions (Tons)	
Annual Avoided CO2 Emissions (Tons)	

ENERGY STAR Rating (if applicable)	
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DRAFT
<TEMPLATE>

ENERGY PERFORMANCE CONTRACT

This Energy Performance Contract ("Contract") is made and entered into as of *<date>*, by and between *<name of energy service company>* ("ESCO"), having its principal offices at *<ESCO's physical address>*, and the State of Idaho, Department of Administration, Division of Public Works ("DPW") for *<name of agency>* ("Agency").

RECITALS

Agency owns and operates facilities, and wishes to acquire equipment and services to reduce energy costs and related expenses in the facilities.

ESCO has experience and technical management capabilities to identify and evaluate energy cost saving opportunities, and provide for engineering, packaging, procurement, installation, financing, maintenance and measurement of cost effective energy and water cost saving measures ("CSMs").

ESCO has delivered to Agency a response to DPW's and Agency's Request for Qualifications ("RFQ") pertaining to the engineering, design, packaging, procurement, installation, financing and measurement of cost effective CSMs at Agency's facilities.

In accordance with the provisions of the RFQ, ESCO was selected to perform a technical energy audit and pursuant to the Technical Energy Audit and Project Development Plan Agreement, dated _____, has delivered to DPW and Agency a Technical Energy Audit Report and Project Development Plan ("Audit Report") which includes an assessment of the energy consumption characteristics of Agency's facilities and the identification and evaluation of viable CSMs, as well as estimates of expected energy and operational savings and associated project costs for each recommended CSM.

Agency desires to contract with ESCO for the design, installation, financing, maintenance and measurement of the CSMs all as set forth herein. **<Note: If there will be no financing under the Contract, reference to "financing" should be removed here and in other appropriate parts of the Contract.>**

ESCO, DPW and Agency all acknowledge and agree that the purpose of this Contract is to achieve the Cost Saving Measures contemplated by this Contract to the benefit of Agency and all agree to cooperate to achieve the purpose of this Contract.

Energy Performance Contract

NOW, THEREFORE, the parties agree as follows:

SECTION 1. ENERGY MANAGEMENT PLAN

Section 1.1. Plan Details. ESCO has prepared the final Audit Report, dated _____, which is set forth in Appendix A and incorporated by reference. The Audit Report has been approved and accepted by DPW and Agency. The Audit Report includes all identified CSMs .

<Note: The Audit Report must be completed before executing this Energy Performance Contract. This section records Agency's approval and acceptance of the Audit Report and makes the Audit Report part of the Contract . If the list of CSMs is not completely finalized prior to signing this contract, include language to that effect.>

<Note: If you anticipate using a lease-purchase agreement to finance CSMs under this contract, do not accept an Audit Report unless ESCO has included an estimate of the acquisition-cost weighted average useful service life of the recommended CSMs.>

Section 1.2. Schedules, Exhibits and Appendices. ESCO has prepared and DPW and Agency have approved and accepted the Schedules and Exhibits as set forth below, copies of which are attached hereto (or will be as provided for in this Contract) and are made a part of this Contract by reference.

Schedules:

Schedule A	Equipment to be Installed by ESCO
Schedule B	Description of Premises; Pre-Existing Equipment Inventory
Schedule C	Energy Savings Guarantee
Schedule D	Compensation to ESCO
Schedule E	Baseline Energy Consumption
Schedule F	Savings Measurement & Calculation Formulae; Methodology to Adjust Baseline
Schedule G	Construction and Installation Schedule
Schedule H	Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment
Schedule I	Standards of Comfort
Schedule J	ESCO's Maintenance Responsibilities
Schedule K	Agency's Maintenance Responsibilities
Schedule L	Facility Maintenance Checklist
Schedule M	ESCO's Training Responsibilities
Schedule N	General Conditions
Schedule O	Annual Installment Payment Schedule <i><Or may be titled "Financing Amortization Schedule", "Debt Service Payment Schedule", etc.></i>
Schedule P	Pre-existing Service Agreements
Schedule Q	Current and Known Capital Projects at Facility
Schedule R	Projected Financial Performance

<Note: Schedules P, Q and R are not yet specifically listed in the body of the Contract. If they are used, reference as to their function should be made in the body of the Contract.>

Exhibits:

Exhibit I	Certificate of Acceptance — Installed Equipment
Exhibit II	Operations and Maintenance Manuals (to be provided)
Exhibit III	Equipment Warranties (to be provided)

Appendices:

Appendix A	Technical Energy Audit Report and Project Development Plan
Appendix B	RFQ
Appendix C	ESCO Proposal
Appendix D	Lease Agreements and Documents, if applicable

<Note: The contract schedules detail the substantive technical parameters of the projects negotiated and agreed to by the parties. These schedules are referenced throughout the Contract. Their titles can be included here for easy reference or at the end of the Contract. If any schedules need to be completed after contract execution, include language to that effect.>

<Note: For Schedule N: General Conditions – If this schedule is used, specify which articles and paragraphs apply to this contract.>

<Note: Descriptions for each schedule, exhibit and appendix are provided at the end of this sample contract in Attachment I.>

Section 1.3. Other Documents. The RFQ and ESCO Proposal for this Project, Appendix B (**RFQ**) and Appendix C (**ESCO Proposal**) respectively are attached and incorporated by reference. The provisions of this Contract and the attached Schedules shall govern in the event of any inconsistencies between the RFQ, ESCO proposal or Audit Report and the provisions of this Contract.

<Note: This section makes the original RFQ and ESCO response a part of the contract. If there is any future discrepancy between the RFQ, ESCO proposal or Audit Report and in this Contract, the terms of this Contract apply. Thus, be sure the Contract and Schedules are complete and accurate.>

SECTION 2. ENERGY USAGE RECORDS AND DATA

Agency has furnished or shall furnish (or cause its energy suppliers to furnish if reasonably possible) to ESCO, upon request, all of its records and complete data concerning energy usage and energy-related maintenance for the Premises described in Schedule B (**Description of Premises; Pre-Existing Equipment Inventory**), including the following data

Energy Performance Contract

for the most current twenty-four (24) month period; utility records; occupancy information; descriptions of any changes in the building structure or its heating, cooling, lighting or other systems or energy requirements; descriptions of all energy consuming or saving equipment used in the Premises; bills and records relating to maintenance of energy-related equipment, and a description of energy management procedures presently utilized. If requested, Agency shall also provide any prior energy audits of the Premises and shall make employees who are familiar with such records available for consultations and discussions with ESCO.

By the _____ day after receipt, Agency shall provide ESCO with copies (hard or electronic) of all energy bills for the Premises that it shall have received for the preceding month. Upon receipt of the required information, ESCO shall calculate the savings in accordance with the agreed-upon calculation formulae in Schedule F (**Savings Calculation Formulae; Methodology to Adjust Baseline**).

<Note: This section ensures that ESCO has access to historical energy consumption, facility operations records and occupancy data necessary to formulate baseline utility consumption. At a minimum, there should be twenty-four (24) months of data, however, thirty-six (36) months is recommended. Existing facility conditions, operations and equipment need to be carefully documented to establish an accurate baseline. This will serve as a record of the state of your buildings before project installation and will be critical to establishing and adjusting the baseline and measurement of savings. Any prior technical studies and energy audits should also be made available for ESCO's review and information. This Section also requires that Agency provide copies of energy bills for the Premises and requires that ESCO calculate the savings based on those bills. >

SECTION 3. COMMENCEMENT DATE AND TERMS; INTERIM PERIOD

Section 3.1. Commencement Date. The Commencement Date shall be the first day of the month after the month in which all of the following have occurred: (i) all schedules are in final form and accepted by Agency; (ii) ESCO has delivered a Notice to Agency that it has installed and commenced operating all of the Equipment specified in Schedule A (**Equipment to be Installed by ESCO**) and in accordance with the provisions of Section 8 (**Construction Schedule and Equipment Installation; Approval**) and Schedule H (**Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment**); and (iii) Agency has inspected and accepted said installation and operation as evidenced by the Certificate of Acceptance as set forth in Exhibit I (**Certificate of Acceptance—Installed Equipment**). Compensation payments due to ESCO for service and maintenance under this Contract as set forth in Schedule D (**Compensation to ESCO**) shall begin no earlier than thirty (30) days from the Commencement Date as defined herein.

<Note: This section determines the Commencement Date when the savings guarantee period begins. This date is usually the first month AFTER ESCO has completed construction and delivered a notice that all equipment is installed and operating, and Agency has signed the Certificate of Acceptance. The Certificate of Acceptance should be attached to the Contract. It also states that no payment for ESCO service and maintenance will be made prior to the Commencement Date. If applicable, the repayment obligation for project financing should be

arranged to coincide with the Commencement Date. The Commencement Date may also need to accommodate Agency's fiscal year for the purpose of appropriations and budgeting. Also, be sure to specify "fiscal year" if that is necessary. See section 23.30 and change if not needed. >

Section 3.2. Term of Contract; Interim Period. Subject to the following sentence, the term of this Contract shall be **<contract term in years>** years measured beginning with the Commencement Date. Nonetheless, the Contract shall be effective and binding upon the parties immediately upon its execution, and the period from contract execution until the Commencement Date shall be known as the "Interim Period". All energy savings achieved during the interim period will be fully credited to Agency.

<Note: Idaho Code § 65-5711D(8)(b) provides that a performance contract term may not exceed twenty-five (25) years. It is DPW policy that such contracts not exceed ten (10) years. Prior to the Commencement Date (Section 3.1) the final contract and schedules are negotiated and executed by signature. At that time ESCO typically begins final project design and construction. The "Interim Period" is the design and construction period. Some savings will be realized during this period. The savings can be credited to ESCO's guarantee or credited to Agency. If these savings are credited to ESCO's guarantee, the credit should be extended for a maximum one to two year period. If ESCO is credited, ESCO will need to develop an approach to measure these savings.>

SECTION 4. PAYMENTS TO ESCO

Section 4.1. Energy Savings Guarantee. ESCO has formulated and, subject to the adjustments provided for in Section 14, **(Material Changes)** has guaranteed the annual level of energy and operations savings to be achieved as a result of the installation and operation of the Equipment and provision of services provided for in this Contract as specified in Schedule J **(ESCO's Maintenance Responsibilities)** and in accordance with the Savings Calculation Formula as set forth in Schedule F **(Savings Calculation Formulae; Methodology to Adjust Baseline)**. The Energy Savings Guarantee is set forth in annual increments for the term of the Contract as specified in Schedule C **(Energy Savings Guarantee)**.

<Note: This section establishes the term of the energy savings guarantee to be on an annual basis.>

Section 4.2. Review and Reimbursement/Reconciliation. If at the end of any **<Note: insert "fiscal" if applicable>** year during the guarantee period as specified in Schedule C **(Energy Savings Guarantee)** ESCO has failed to achieve the annual Energy Savings Guarantee specified in Schedule C **(Energy Savings Guarantee)**, upon written request by Agency, which shall be given no earlier than the end of such year and no later than thirty (30) days thereafter, ESCO will pay Agency the difference between the annual amount guaranteed and the amount of actual energy and operations savings achieved at the Premises in accordance with the provisions of Schedule C **(Energy Savings Guarantee)**. ESCO shall remit such payments to Agency within thirty (30) days of written notice by Agency of such monies due. When the total energy savings in any one year during the guarantee period exceed the Energy Savings Guarantee as set

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forth in Schedule C (**Energy Savings Guarantee**) and are in addition to those monies due ESCO for compensation for services as set forth in Schedule D (**Compensation to ESCO**), such excess savings shall be the property of Agency. ESCO shall annually prepare and provide a report to the Administrator of DPW and to Agency documenting the performance of the CSMs.

<Note: This section is drafted to provide for the review and potential reimbursement annually. If the Agency does not want to wait until the conclusion of an entire year for potential reimbursement, Agency may consider doing this more frequent, for example, semi-annually. Agency may also want to consider making the review more frequent during the first few years of the contract only or during the years that measurement and verification will be done by ESCO.>

Open book pricing will be required, such that ESCO will fully disclose all costs, including all subcontractor and vendor costs. ESCO will maintain cost accounting records on authorized work performed under actual costs for labor and material, or other basis requiring records. ESCO will afford DPW access to these records and preserve them for a period of three (3) years after final payment. Costs will be evaluated through price analysis to compare costs with reasonable criteria such as established catalog and market prices or historical prices.

ESCO, Agency and DPW agree to work in good faith to resolve any disagreement over the calculation of the energy savings. Should an irresolvable disagreement arise as to the calculation of energy savings, an independent public accounting firm may be engaged by either party to conduct a review and give an opinion on whether the calculation of savings or deficiencies as prepared by ESCO is fairly stated in accordance with this Contract. The independent public accounting firm shall be mutually agreed upon by the parties (if the parties cannot agree upon an accounting firm, then each shall designate a firm; and the two designated firms shall identify a mutually agreeable third firm). The independent public accounting firm shall include in its report any exceptions determined by its review. Exercise of the right to request a review shall in no way affect Agency's obligation to make current payments pursuant to this Contract unless otherwise described herein. Any payments between the parties necessary to resolve any irregularities identified in the review will be made within sixty (60) days after submission of the review to the parties. If ESCO calls the review, ESCO shall pay the cost of the review. If the review is called by Agency, the following structure will be applied to paying for the review:

If the review determines that ESCO's preparation of the Energy Savings Guarantee was more than ten percent (10%) in error, ESCO shall pay the entire cost of the review; however if ESCO's determination of the Energy Savings Guarantee are in error of ten percent (10%) or less than the amounts as determined by the independent public accounting firm, Agency shall pay for the entire cost of the review. In any case, the _____ shall be changed to reflect the findings of the review and the calculations of savings relating to the guarantee will be modified if necessary.

<Note: At the end of each contract year, usually within a specified 45-60 days, there will be a review and reconciliation of the actual achieved savings (subject to any adjustments made for weather, occupancy, operations etc.) vs. ESCO's guaranteed savings projections. If there is a savings shortfall, ESCO is contractually liable to reimburse Agency for the difference between

what was actually achieved and the guaranteed amount. If in any year, the achieved savings exceed the guarantee, Agency shall retain excess savings. As an incentive for ESCO to look even deeper for additional savings, a shared savings arrangement could be part of this agreement.>

Section 4.3. ESCO Compensation and Fees: ESCO has structured the Energy Savings Guarantee referred to in Section 4.1 above, so as to be sufficient to equal or exceed the sum of any and all annual payments required to be made by Agency in connection with the acquisition of Equipment to be installed by ESCO under this Contract as set forth in Schedule O (**Annual Installment Payment Schedule**) and any and all annual fees to be paid by Agency to ESCO for the provision of services as set forth and in accordance with the provisions of Schedule D (**Compensation to ESCO**) and Schedule J (**ESCO's Maintenance Responsibilities**).

<Note: This section ensures that ESCO's savings guarantee will at least cover annual project financing costs (principal and interest) and all annual ESCO service fees for maintenance and measurement and verification .>

Section 4.4. Billing Information Procedure. Payments due to ESCO under this Section 4 shall be calculated in accordance with the provisions of Schedule D. ESCO shall provide Agency with an invoice of the total amount due.

Section 4.5. Effective Date of Payment Obligation. Notwithstanding the above provisions in Section 4, Agency shall not be required to begin any payments to ESCO under this Contract unless and until all equipment installation is completed by ESCO in accordance with the provisions of Section 8 (**Construction and Equipment Installation; Approval**) and Schedule H (**Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment**), and accepted by Agency as evidenced by the signed Certificate of Acceptance as set forth in Exhibit I (**Certificate of Acceptance — Installed Equipment**), and unless and until said equipment is fully and properly functioning.

<Note: This section states that no ESCO fees shall be paid until all equipment is installed and operating in accordance with the agreed upon Construction Schedule and until Agency has accepted the completed installation and signed the required Certificate of Acceptance — Installed Equipment.>

SECTION 5. PERMITS AND APPROVALS; COORDINATION

Section 5.1. Permits and Approvals. Agency shall use its best efforts to assist ESCO in obtaining all necessary permits and approvals for installation of the Equipment. In no event shall Agency be responsible for payment of any permits fees. The Equipment and the operation of the Equipment by ESCO shall at all times conform to all federal, state and local code requirements. ESCO shall furnish copies of each permit or license, which is required to perform the work to Agency, before ESCO commences the portion of the work requiring such permit or license.

ESCO shall pay for plumbing and electrical permits required by the Idaho Division of Building Safety. ESCO shall obtain and pay for all licenses and permits and shall pay all fees

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and charges for connections to outside services and for the use of municipal or private property for storage of materials, parking, utility services, temporary obstructions, enclosures, opening and patching of streets, etc., arising from the construction and completion of the installation and maintenance contemplated by this Contract.

<Note: This standard construction provision requires ESCO comply with all code requirements, pay all associated permit fees and provide Agency with copies of each permit and license required to do the work. Agency agrees to assist ESCO to the best of its ability to obtain required permits and approvals.>

Section 5.2. Coordination During Installation. Agency and ESCO shall coordinate the activities of ESCO's equipment installers with Agency employees, and agents. ESCO shall not commit or permit any act that will interfere with the performance of business activities conducted by Agency or its employees without prior written approval of Agency.

<Note: This standard provision directs both Agency and ESCO to coordinate equipment installation to avoid interference with Agency's business activities. If an installation requires interference, ESCO must first obtain Agency's written approval to proceed. If a facility generates revenue for Agency (e.g. civic center, theater, arena etc.) and scheduled revenue-producing activities are interrupted due to the fault of ESCO, either during project installation or operation, then a provision for the collection of damages may be negotiated.

SECTION 6. LOCATION AND ACCESS

Agency shall provide sufficient space on the Premises for the installation and operation of the Equipment and shall take reasonable steps to protect such Equipment from harm, theft and misuse. Agency shall provide access to the Premises for ESCO to perform any function related to this Contract during regular business hours, or such other reasonable hours as may be requested by ESCO and acceptable to Agency. Agency shall not unreasonably restrict ESCO's access to Premises to make emergency repairs or corrections as ESCO may determine are needed.

<Note: This provision states Agency's responsibility for providing adequate space and protection for the installed equipment and authorizes ESCO's access to the facility to perform routine and emergency operations.>

SECTION 7. PERFORMANCE BY ESCO

ESCO shall perform all tasks/phases under the Contract, including construction, and install the Equipment in such a manner so as not to harm the structural integrity of the buildings or their operating systems and so as to conform to the standards set forth in Schedule I (**Standards of Comfort**) and the construction schedule specified in Schedule G (**Construction and Installation Schedule**). ESCO shall repair and restore to its original condition any area of damage caused by ESCO's performance under this Contract. Agency reserves the right to review the work performed by ESCO and to direct ESCO to take certain corrective action if, in the opinion of Agency, the structural integrity of the Premises or its operating system is or will be

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harmful. All costs associated with such corrective action to damage caused by ESCO's performance of the work shall be borne by ESCO.

ESCO shall remain responsible for the professional and technical accuracy of all services performed, whether by ESCO or its subcontractors or others on its behalf, throughout the term of this Contract.

<Note: This section directs ESCO to protect the premises and its contents and repair and restore to the original condition any damage caused by ESCO in connection with this contract. Any costs incurred to correct such damage will be paid by ESCO. ESCO is solely responsible for the technical professional accuracy of all work performed under this Contract including work done by subcontractors or others.>

SECTION 8. CONSTRUCTION SCHEDULE AND EQUIPMENT INSTALLATION; APPROVAL

Section 8.1. Construction and equipment installation shall proceed in accordance with the construction schedule approved by Agency and attached hereto as Schedule G (**Construction and Installation Schedule**).

<Note: The construction/installation phase of the project must be managed in compliance with Agency's requirements and governing statutes. Since construction is just one component of the overall project, a separate construction contract may be desirable and in some cases may be necessary. The construction contract would be referenced in the body of the contract and attached, or the appropriate construction language could be incorporated into the body of the contract.>

Section 8.2. Systems Startup and Equipment Commissioning: ESCO shall conduct a thorough and systematic performance test of each element and total system of the installed Equipment in accordance with the procedures specified in Schedule H (**Systems Start-Up and Commissioning; Operating Parameters of Installed Equipment**) and prior to acceptance by Agency. ESCO shall provide notice to Agency of the scheduled test(s) and Agency and/or its designees shall have the right to be present at any or all such tests conducted by ESCO and/or manufacturers of the Equipment. ESCO shall be responsible for correcting and/or adjusting all deficiencies in systems and Equipment operations that may be observed during system commissioning procedures.

Section 8.3. Inspection and Final Approval: DPW and Agency have the right to inspect, test and approve the work conducted in the facilities during construction and operation. DPW shall have the right and access to the account books, records, and other compilations of data that pertain to the performance of the provisions and requirements of this Contract. Records shall be kept on a generally recognized accounting basis, and calculations will be kept on file in legible form and retained for three (3) years after close-out.

<Note: This section requires ESCO to do commissioning to ensure the system is functioning properly, testing equipment performance and verifying the specified operating parameters.

Commissioning typically occurs before the owner's final project acceptance, however, language can be included here to provide for testing after project acceptance. It also requires ESCO notify Agency when testing will take place and gives Agency (or its designee) the right to be present during all tests. Have the commissioning report include manufacturer's startup and performance sheets.>

SECTION 9. STANDARDS OF COMFORT

ESCO will maintain and operate the Equipment in a manner that will provide the standards of heating, cooling, hot water, and lighting as described in Schedule I (**Standards of Comfort**).

<Note: This section references the standards of comfort contained in Schedule I that ESCO is contractually liable to maintain throughout the contract term. These standards are negotiated between ESCO and Agency to reflect realistic ranges of heating, cooling and hot water temperatures, lighting levels, chilled water requirements, and other specified comfort and operating parameters to be maintained.>

SECTION 10. EQUIPMENT WARRANTIES AND COMPATIBILITY

ESCO covenants and agrees that all equipment installed, as part of this Contract, is new, in good and proper working condition and protected by appropriate written warranties covering all parts and equipment performance. Demonstrators, previously rented, refurbished, or reconditioned items are not considered "new" except as specifically provided in this section. "New" means items that have not been used previously and that are being actively marketed by the manufacturer. Equipment may contain new or minimal amounts of recycled or recovered parts that have been reprocessed to meet the manufacturer's new product standards. Equipment must have the State of Idaho as their first customer and must not have been previously sold, installed, demonstrated, or used in any manner (such as rentals, demonstrators, trial units, etc.). Equipment offered must be provided with a full, unadulterated, and undiminished new item warranty against defects in workmanship and materials. The warranty is to include replacement, repair, and any labor for the warranty period. ESCO further agrees to deliver to Agency for inspection and approval all such written warranties, which shall be attached and set forth as Exhibit II (**Equipment Warranties**); to transfer warranties to Agency; to pursue rights and remedies against the manufacturer of the equipment under the warranties in the event of equipment malfunction or improper or defective function, and defects in parts, workmanship and performance; and to notify Agency whenever defects in equipment parts or performance occur or when warranty rights and remedies are exercised by ESCO. The cost of any risk of damage or damage to the equipment and its performance, including damage to property and equipment of Agency or the Premises, due to ESCO's failure to exercise its warranty rights shall be borne solely by ESCO.

All warranties shall specify that only new, and not reconditioned parts, may be used and installed when repair is necessitated by malfunction. All warranties required hereunder shall be in force for a minimum of one (1) year from the Commencement Date.

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Notwithstanding the above, nothing in this Section shall be construed to alleviate/relieve ESCO from complying with its obligations to perform under all terms and conditions of this Contract and as set forth in all attached Schedules.

<Note: This warranty provision ensures all installed equipment is new and protected by appropriate written manufacturers warranties for parts and performance for a minimum of one (1) year. It requires that warranties provide for replacement with new parts (not used or reconditioned) during the warranty period. While equipment warranties will be transferred to Agency after completed project installation, ESCO is responsible for pursuing any necessary remedies during the warranty period. If ESCO fails to exercise the warranty and damages occur, ESCO is responsible for all costs of repair and any lost savings. Manufacturer warranties can not supersede Sections 3.1>

SECTION 11. TRAINING BY ESCO

ESCO shall conduct the training program described in Schedule M (**ESCO's Training Responsibilities**) hereto. The training specified in Schedule M (**ESCO's Training Responsibilities**) must be completed prior to acceptance of the Equipment installation. ESCO shall provide ongoing training whenever needed with respect to updated or altered Equipment, including upgraded software, and including newly hired maintenance personnel during the term of the Contract. Such training shall be provided at no charge to the Agency.

<Note: In many performance contracts training of facility personnel is conducted before acceptance of the completed installation. If it is necessary to conduct training after project acceptance, note this in the appropriate schedule. If there are charges for unscheduled training, it should be noted in this section.>

SECTION 12. EQUIPMENT SERVICE

Section 12.1. Actions by ESCO. ESCO shall provide all service, repairs, and adjustments to the Equipment installed under terms of this Contract pursuant to Schedule J (**ESCO's Maintenance Responsibilities**). Agency shall incur no cost for Equipment service, repairs, and adjustments, except as set forth in Schedule D (**Compensation to ESCO**), provided, however, that when the need for maintenance or repairs principally arises due to the negligence or willful misconduct of Agency or any employee or other agent of Agency, and ESCO can so demonstrate such causal connection, ESCO may charge Agency for the actual cost of the maintenance or repair insofar as such cost is not covered by any warranty or insurance proceeds.

<Note: This section refers to the maintenance and service responsibilities of each party as specified in Schedules J and D. It also states that if Agency is at fault for causing additional maintenance or repair to the equipment, Agency will be charged by ESCO for maintenance or repair costs.>

Section 12.2. Malfunctions and Emergencies. Agency shall use its best efforts to notify ESCO or its designee(s) within twenty-four (24) hours after Agency's actual knowledge and occurrence of: (i) any malfunction in the operation of the Equipment or any preexisting energy

related equipment that might materially impact upon the guaranteed energy savings, (ii) any interruption or alteration to the energy supply to the Premises, or (iii) any alteration or modification in any energy-related equipment or its operation.

Where Agency exercises due diligence in attempting to assess the existence of a malfunction, interruption, or alteration it shall be deemed not at fault in failing to correctly identify such conditions as having a material impact upon the guaranteed energy savings. Agency shall notify ESCO within twenty-four (24) hours upon its having actual knowledge of any emergency condition affecting the Equipment. ESCO, or its designee(s) shall respond within ____ hours and shall promptly proceed with corrective measures. Any telephonic notice of such conditions by Agency shall be followed within three (3) business days by written notice to ESCO from Agency. If Agency unreasonably delays in notifying ESCO of a malfunction or emergency, and the malfunction or emergency is not otherwise corrected or remedied, such conditions will be treated as a Material Change and the applicable provisions of Section 14 (**Material Changes**) shall be applied.

ESCO will provide a written record of all service work performed. This record will indicate the reason for the service, description of the problem and the corrective action performed.

<Note: This section requires Agency to notify ESCO within a specified number of hours of actually knowing about any situation that impacts the performance of the equipment. The impacts cover both pre-existing energy related equipment and the newly installed equipment including equipment malfunction or modification, interruption of power supply or any emergency situation which may affect the energy savings guarantee. If such an impact is known by Agency to have occurred and Agency delays notifying ESCO and doesn't correct the situation, it will be treated as a Material Change and the baseline will be adjusted accordingly. If Agency makes an effort to assess the situation and incorrectly determines it doesn't have an impact, then ESCO will not fault Agency, although an adjustment to the baseline may still be warranted.>

Section 12.3. Actions by Agency. Agency shall not move, remove, modify, alter, or change in any way the Equipment or any part thereof without the prior written approval of ESCO except as set forth in Schedule K (**Agency's Maintenance Responsibilities**). Notwithstanding the foregoing, Agency may take reasonable steps to protect the Equipment if, due to an emergency, it is not possible or reasonable to notify ESCO before taking any such actions. In the event of such an emergency, Agency shall take reasonable steps to protect the Equipment from damage or injury and shall follow instructions for emergency action provided in advance by ESCO. Agency agrees to maintain the Premises in good repair and to protect and preserve all portions thereof, which may in any way affect the operation or maintenance of the Equipment.

<Note: This section states Agency may not make any changes to the operation and maintenance of the equipment without prior written approval of ESCO unless otherwise indicated in Schedule K or if there is an emergency and ESCO can't be reasonably notified. In the case of such emergency, Agency should follow instructions provided by ESCO for emergency action.>

SECTION 13. UPGRADING OR ALTERING THE EQUIPMENT

ESCO shall at all times have the right, subject to Agency's prior written approval, which approval shall not be unreasonably withheld, to change the Equipment, revise any procedures for the operation of the equipment or implement other energy saving actions in the Premises, provided that:

(i) ESCO complies with the standards of comfort and services set forth in Schedule I (**Standards of Comfort**) herein;

(ii) such modifications or additions to, or replacement of the Equipment, and any operational changes, or new procedures are necessary to enable ESCO to achieve the energy savings at the Premises and;

(iii) any cost incurred relative to such modifications, additions or replacement of the Equipment, or operational changes or new procedures shall be the responsibility of ESCO.

All modifications, additions or replacements of the Equipment or revisions to operating or other procedures shall be described in a supplemental Schedule(s) to be provided to Agency for approval, which shall not be unreasonable withheld, provided that any replacement of the Equipment shall be new as set forth in Section 10 and have equal or better potential to reduce energy consumption at the Premises than the Equipment being replaced. ESCO shall update any and all software to be used in connection with the Equipment in accordance with the provisions of Section 18.1 (**Ownership of Certain Proprietary Rights**). All replacements of and alterations or additions to the Equipment shall become part the Equipment described in Schedule A (**Equipment to be Installed by ESCO**) and shall be covered by the provisions and terms of Section 8 (**Construction Schedule and Equipment Installation; Approval**).

<Note: This section describes the terms and conditions under which ESCO may make changes to the equipment, operating procedures or take other energy savings actions. If such changes are implemented during any time during the Contract they must be described in a supplemental schedule and be approved by Agency. Any equipment replaced is required to be new and have the potential to produce at least as much or more savings. If computer software is updated, the licensing provisions of Section 18.1 still apply.>

SECTION 14. MATERIAL CHANGES

<Note: It is typical for the percent of deviation to be negotiated as a value ranging between two percent (2%) and five percent (5%) based on aggregate consumption costs. The lower value (2%) may be appropriate for large facilities (over \$20,000/month utility bills) and the higher value (5%) may be appropriate for small facilities (less than \$5,000/month utility bills).>

Section 14.1. Material Change Defined: A Material Change shall include any change in or to the Premises, whether structural, operational or otherwise in nature which reasonably could be expected, in the judgment of Agency, to increase or decrease annual energy consumption in

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accordance with the provisions and procedures set forth in Schedule E (**Baseline Energy Consumption**) and Schedule F (**Savings Measurement and Calculation Formulae; Methodology to Adjust Baseline**) by at least _____ percent (____%) after adjustments for climatic variations. Actions by Agency, which may result in, a Material Change include but are not limited to the following:

- (i) manner of use of the Premises by Agency; or
- (ii) hours of operation for the Premises or for any equipment or energy using systems operating at the Premises; or
- (iii) permanent changes in the comfort and service parameters set forth in Schedule I (**Standards of Comfort**); or
- (iv) occupancy of the Premises; or
- (v) structure of the Premises; or
- (vi) types and quantities of equipment used at the Premises or
- (vii) modification, renovation or construction at the Premises; or
- (viii) Agency's failure to provide maintenance of and repairs to the Equipment in accordance with Schedule K (**Agency's Maintenance Responsibilities**); or
- (ix) any other conditions other than climate affecting energy use at the Premises.

<Note: This section defines the term "Material Change" which covers any condition other than weather, that affects building energy use by more than the negotiated percentage (see above discussion).>

Section 14.2. Reported Material Changes; Notice by Agency: Agency shall use its best efforts to deliver to ESCO a written notice describing all actual or proposed Material Changes in the Premises or in the operations of the Premises at least __ (____) days before any actual or proposed Material Change is implemented or as soon as is practicable after an emergency or other unplanned event. Notice to ESCO of Material Changes which result because of a bona fide emergency or other situation which precludes advance notification shall be deemed sufficient if given by Agency within _____ (____) hours after having actual knowledge that the event constituting the Material Change occurred or was discovered by Agency to have occurred.

<Note: This section requires Agency to notify ESCO in writing if there are any actual or planned changes to the facility which would effect energy consumption by more than the negotiated percentage (see above discussion). In the event of an emergency or situation that would prevent advance notification, Agency has a specified number of hours to inform ESCO that a Material Change has occurred.>

Section 14.3. Unreported Material Change. In the absence of any Material Changes in the Premises or in their operations, the baseline energy consumption as set forth in Schedule E (**Baseline Energy Consumption**) should not change more than ____ percent (____%) during any month from the projected energy usage for that month, after adjustments for changes in climatic conditions. Therefore, if energy consumption for any month as set forth in Schedule E (**Baseline Energy Consumption**) deviates by more than ____ percent (____%) from the energy consumption for the same month of the preceding contract year after adjustments for changes to climatic conditions, then such deviation shall be timely reviewed by ESCO to ascertain the cause of deviation. ESCO shall report its findings to Agency in a timely manner and ESCO and Agency shall determine what, if any, adjustments to the baseline will be made in accordance with the provisions set forth in Schedule F (**Savings Measurement and Calculation Formulae; Methodology to Adjust Baseline**) and Schedule E (**Baseline Energy Consumption**).

<Note: This section states that if all building conditions and operations stay the same, then energy consumption will not vary more than the negotiated percentage (see above discussion) during any month when compared to the baseline use for that month and after adjustments for weather are made. In the event such a variation occurs, ESCO will try to determine the cause of the deviation and report its findings to Agency. ESCO and Agency will then determine what adjustments will be made to the baseline as described in Schedule F. Disputes may need to be addressed here.>

SECTION 15. REPRESENTATIONS AND WARRANTIES

Each party warrants and represents to the other that:

- (i) it has all requisite power, authority, licenses, permits, and franchises, corporate or otherwise, to execute and deliver this Contract and perform its obligations hereunder;
- (ii) its execution, delivery, and performance of this Contract have been duly authorized by, or are in accordance with, its organic instruments, and this Contract has been duly executed and delivered for it by the signatories so authorized, and it constitutes its legal, valid, and binding obligation;
- (iii) its execution, delivery, and performance of this Contract will not breach or violate, or constitute a default under any Contract, lease or instrument to which it is a party or by which it or its properties may be bound or affected; or
- (iv) it has not received any notice, nor to the best of its knowledge is there pending or threatened any notice, of any violation of any applicable laws, ordinances, regulations, rules, decrees, awards, permits or orders which would materially and adversely affect its ability to perform hereunder.

<Note: This boilerplate provision states that each party has the requisite authority and ability to enter into this contract.>

SECTION 16. ADDITIONAL REPRESENTATIONS OF THE PARTIES.

Agency hereby warrants, represents and promises that it has not entered into any undisclosed leases, or contracts with other persons or entities regarding the leasing of energy efficiency equipment or the provision of energy management services for the Premises or with regard to servicing any of the energy related equipment located in the Premises. Agency shall provide ESCO with copies of any successor or additional leases of energy efficiency equipment and contracts for management or servicing of preexisting equipment at Premises that may be executed from time to time hereafter within sixty (60) days after execution thereof.

Agency agrees that it shall adhere to, follow and implement the energy conservation procedures and methods of operation to be set forth on Schedule K (**Agency's Maintenance Responsibilities**), to be attached hereto and made a part hereof after Agency's approval.

Agency agrees that ESCO shall have the right once a month, with prior notice, to inspect Premises to determine if Agency is complying, and shall have complied with such obligations. For the purpose of determining Agency's said compliance, the checklist to be set forth at Schedule L (**Facility Maintenance Checklist**) as completed and recorded by ESCO during its monthly inspections, shall be used to measure and record Agency's said compliance. Agency shall make the Premises available to ESCO for and during each monthly inspection, and shall have the right to witness each inspection and the recordation on the checklist.

ESCO hereby warrants, represents and promises that:

- (i) before commencing performance of this Contract:
 - (a) it shall have become licensed or otherwise permitted to do business in the State of Idaho.
 - (b) it shall have provided proof and documentation of required insurance pursuant to Section 17 (**Insurance Requirements**);
 - (c) it shall submit a properly executed Contractor's Affidavit Concerning Taxes.
- (ii) it shall make available, upon reasonable request, all documents relating to its performance under this Contract, including but not limited to all contracts and subcontracts entered into;
- (iii) it shall use qualified subcontractors and delegees, licensed and bonded in this state to perform the work so subcontracted or delegated pursuant to the terms hereof;
- (iv) it is financially solvent, able to pay its debts as they mature and possessed of sufficient working capital to complete and perform its obligations under this Contract.

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The parties acknowledge and agree that ESCO has entered into this Contract in reliance upon the prospect of earning compensation based on guaranteed energy savings in energy used at Premises, as set forth on Schedules C (**Energy Saving Guarantee**) and D (**Compensation to ESCO**), attached hereto and made a part hereof. The parties further acknowledge and agree that the said guaranteed energy savings would not likely be obtained unless certain procedures and methods of operation designed for energy conservation shall be implemented, and followed by Agency on a regular and continuous basis.

<Note: This provision protects both ESCO and Agency by establishing a method for ESCO to supervise Agency's compliance with the scheduled routine and preventative maintenance activities to be performed by Agency (either by in-house personnel or existing maintenance contract). This checklist should be developed for both the newly installed and pre-existing energy-related equipment.>

<Note: These additional representations address several areas specific to the performance contract. Agency declares it has not entered into any leases or service contracts relating to energy equipment or servicing of pre-existing equipment and will notify ESCO within a specified period of time if it does so.

ESCO certifies that before beginning work under this contract it will: have become licensed to business in the state of Idaho; provide proof of required insurance; give Agency access to all document relating to the project (including all contracts and subcontracts) upon request; use Idaho-licensed and qualified subcontractors; and is financially able to complete the project and perform under the terms of this contract.>

SECTION 17. PROPERTY/CASUALTY/INSURANCE; INDEMNIFICATION

Prior to commencement of any work and for the duration of this Agreement, ESCO must provide and maintain insurance as set forth below. ESCO shall require all subcontractors to maintain the same insurance required herein of ESCO. All such insurance shall be written on a Comprehensive Form of Policy. Failure to provide satisfactory evidence of coverage may result in rejection of a submission and/or contract cancellation. Insurance required by this section shall name the State of Idaho as an additional named insured and shall be with insurers rated A-VII or better in the latest *Bests Rating Guide* and in good standing and authorized to transact business in Idaho. The coverage provided by such policy shall be primary to any coverage of the State on or related to the Contract and shall provide that the insurance afforded applies separately to each insured against whom a claim is made, except with respect to the limitation of liability. Any "other insurance" provisions contained in any policy including the state of Idaho as an additional insured shall not apply. All required policies shall evidence that the policies have been endorsed to require sixty (60) days' notice to the State, by certified or registered mail, return receipt requested, prior to any cancellation, potential reduction in aggregate limits, refusal to renew or any material change in the nature or extent of the coverage provided. All policies shall contain waivers of subrogation. ESCO waives all rights against the State and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the required policies. Policies may contain deductibles but such deductibles shall not be reduced from any damages due to the State.

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By requiring insurance herein, the State does not represent that coverage and limits will necessarily be adequate to protect ESCO and such coverage and limits shall not be deemed a limitation on ESCO's indemnity liabilities under the Contract.

The following are required:

a. Workers' Compensation Insurance with statutory limits as required by statute, and Employer's Liability Insurance with limits of not less than One Hundred Thousand and 00/100 Dollars (\$100,000.00) per Accident, Five Hundred Thousand and 00/100 Dollars (\$500,000.00) Disease, Policy Limit and One Hundred Thousand and 00/100 Dollars (\$100,000.00) Disease, Each Employee.

b. Automobile Liability, including non-owned and hired with a limit not less than One Million and 00/100 Dollars (\$1,000,000.00).

c. Commercial General Liability and Umbrellas Liability Insurance including premises, operation, owners and contractors protective liability, products and completed operations liability, personal injury liability (including employee acts), broad form property damage liability and blanket contractual liability in amounts of not less than Five Million and 00/100 Dollars (\$5,000,000.00). ESCO shall maintain Commercial General Liability (CGL) and, if necessary, commercial umbrella or excess liability with a limit of not less than Five Million and 00/100 Dollars (\$5,000,000.00) each occurrence/Annual Aggregate and the Annual Aggregate shall be endorsed to apply separately to each job site or location. The Schedule of Underlying Insurance in the Umbrella Policy shall include the CGL, the auto policy and the Employer's Liability Policy. In the event any of the hazards of explosion, collapse and underground, normally referred to as XCU, exist, then such hazards shall be covered and protection afforded under the policy and such exclusions must be removed from the policy.

d. ESCO shall maintain in full force and effect, at ESCO's expense, an Errors and Omissions or Professional Liability Insurance Policy in the amount of \$2,000,000 minimum coverage. Such coverage may be on a "claims made" basis. If such insurance is on a "claims made" basis, it shall remain in effect for the duration of the applicable statute of limitations for claims against professionals such as ESCO. ESCO shall be responsible for all claims, damages, losses or expenses, including attorneys' fees, arising out of or resulting from the performance of professional services contemplated by this Agreement, provided that any such claim is attributable to bodily injury or death, or injury to or destruction of tangible personal property or to failures of the work, including the loss of use resulting there from, and is caused, in whole or in part, by any negligent act, error or omission of ESCO, or any consultant or associate thereof, anyone directly or indirectly employed by ESCO. ESCO shall submit a Certificate of Insurance verifying said coverage upon execution of this Agreement and also any notices of renewals of such policy as they occur.

e. ESCO shall maintain in full force and effect, at ESCO's expense, an Installation Floater, with limits of not less than One Million and 00/100 Dollars (\$1,000,000.00), for coverage of the ESCO's labor, materials, and any equipment to be used for completion of

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work under this contract. Coverage is to be on an all risk of physical damage form, including earthquake and flood. This insurance shall include the State of Idaho, DPW, Agency, the contractor and its subcontractors as their interests may appear.

ESCO shall be responsible for (i) any damage to the Equipment or other property on the Premises and (ii) any personal injury where such damage or injury occurs as a result of ESCO's performance under this Contract.

ESCO shall save and hold harmless DPW and Agency and their officers, agents and employees or any of them from any and all claims, demands, actions or liability of any nature based upon or arising out of any services performed by ESCO, its agents or employees under this Contract.

<Note: This section needs to reflect Agency's requirements with regard to insurance and indemnification.>

SECTION 18. OWNERSHIP

Section 18.1. Ownership of Certain Proprietary Property Rights. Agency shall not, by virtue of this Contract, acquire any interest in any formulas, patterns, secret inventions or processes, copyrights, patents, or other intellectual or proprietary rights that are or may be used in connection with the Equipment. ESCO shall grant to Agency a perpetual, irrevocable royalty-free license for any and all software or other intellectual property rights necessary for Agency to continue to operate, maintain, and repair the Equipment in a manner that will yield maximal energy consumption reductions.

<Note: In most cases, this provision addresses ESCO's proprietary rights over customized (or exclusive) software used in an energy management system which may control, manage and perform other functions in conjunction with the project (there may be other technical designs, processes, formulas etc., which this provision would cover). Of particular importance is the stipulation that grants Agency a continuing license (at no charge) to use and operate the project without violating ESCO's proprietary rights.>

Section 18.2. Ownership of Existing Equipment. The equipment and materials at the Premises at the time of execution of this Contract shall remain the property of Agency even if it is replaced or its operation made unnecessary by work performed by ESCO pursuant to this Contract. If applicable, ESCO shall advise Agency in writing of all equipment and materials to be replaced at the Premises and Agency shall within thirty (30) days designate in writing to ESCO which equipment and materials should not be disposed of off-site by ESCO. It is understood and agreed to by both Parties that Agency shall be responsible for and designate the storage location for any equipment and materials that should not be disposed of off-site. ESCO shall be responsible for the disposal of all equipment and materials designated by Agency as disposable off-site in accordance with all applicable laws and regulations regarding such disposal.

<Note: This provision states that Agency has ownership of all existing equipment and ESCO shall notify Agency in writing of what equipment and materials are to be replaced. If Agency chooses to keep the equipment to be replaced, ESCO will be notified and Agency will be responsible for identifying the location of where the property is to be stored or relocated. ESCO is responsible for all equipment and materials to be disposed>

Section 18.3 Ownership of Drawings. All drawings, reports and materials prepared by ESCO specifically in performance of this Contract shall become the property of Agency and will be delivered to Agency no later than forty-five (45) days after completion.

SECTION 19. EVENTS OF DEFAULT

Section 19.1. Events of Default by Agency. Each of the following events or conditions shall constitute an "Event of Default" by Agency:

- (i) any failure by Agency to pay ESCO any sum due for a service and maintenance period of more than sixty (60) days after written notification by ESCO that Agency is delinquent in making payment and provided that ESCO is not in default in its performance under the terms of this Contract;
- (ii) any other material failure by Agency to perform or comply with the terms and conditions of this Contract, including breach of any covenant contained herein, provided that such failure continues for sixty (60) days after notice to Agency demanding that such failures to perform be cured or if such cure cannot be effected in sixty (60) days, Agency shall be deemed to have cured default upon the commencement of a cure within sixty (60) days and diligent subsequent completion thereof; or
- (iii) any representation or warranty furnished by Agency in this Contract, which was false, or misleading in any material respect when made.

Section 19.2. Events of Default by ESCO. Each of the following events or conditions shall constitute an "Event of Default" by ESCO:

- (i) the standards of comfort and service set forth in Schedule I (**Standards of Comfort**) are not provided due to failure of ESCO to properly design, install, maintain, repair or adjust the Equipment except that such failure, if corrected or cured within thirty (30) days after written notice by Customer to ESCO demanding that such failure be cured, shall be deemed cured for purposes of this Contract;
- (ii) any representation or warranty furnished by ESCO in this Contract is false or misleading in any material respect when made;
- (iii) failure to furnish and install the Equipment and make it ready for use within the time specified by this Contract as set forth in Schedules A (**Equipment to be Installed by ESCO**) and G (**Construction and Installation Schedule**);

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(iv) provided that the operation of the facility is not adversely affected and provided that the standards of comfort in Schedule I (**Standards of Comfort**) are maintained, any failure by ESCO to perform or comply with the terms and conditions of this Contract, including breach of any covenant contained herein except that such failure, if corrected or cured within thirty (30) days after written notice by the Customer to ESCO demanding that such failure to perform be cured, shall be deemed cured for purposes of this Contract;

(v) any lien or encumbrance is placed upon the Equipment by any subcontractor, laborer, supplier or lender of ESCO;

(vi) the filing of a bankruptcy petition whether by ESCO or its creditors against ESCO which proceeding shall not have been dismissed within ninety (90) days of its filing, or an involuntary assignment for the benefit of all creditors or the liquidation of ESCO;

(vii) Any change in ownership or control of ESCO without the prior approval of Agency, which shall not be unreasonably withheld; or

(viii) failure by ESCO to pay any amount due Agency or perform any obligation under the terms of this Contract or the Energy Savings Guarantee as set forth in Schedule C (**Energy Savings Guarantee**).

SECTION 20. REMEDIES UPON DEFAULT

Section 20.1. Remedies upon Default by Agency. If an Event of Default by Agency occurs, ESCO may exercise all remedies available at law or in equity or other appropriate proceedings including bringing an action or actions from time to time for recovery of amounts due and unpaid by Agency, and/or for damages which shall include all costs and expenses reasonably incurred in exercise of its remedy. Election of one (1) remedy is not a waiver of other available remedies.

Section 20.2. Remedies Upon Default by ESCO. In the Event of Default by ESCO, Agency may exercise and any all remedies at law or equity, or institute other proceedings, including, without limitation, bringing an action or actions from time to time for specific performance, and/or for the recovery of amounts due and unpaid and/or for damages, which shall include all costs and expenses reasonably incurred, including attorney's fees. Election of one (1) remedy is not a waiver of other available remedies.

SECTION 21. CONDITIONS BEYOND CONTROL OF THE PARTIES

If a party ("performing party") shall be unable to reasonably perform any of its obligations under this Contract due to acts of God, insurrections or riots, or other event beyond its control, this Contract shall at the other party's option (i) remain in effect but said performing party's obligations shall be suspended until the said events shall have ended; or, (ii) be terminated upon ten (10) days' notice to the performing party, in which event neither party shall have any further liability to the other.

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SECTION 22. ASSIGNMENT

Section 22.1. Assignment by ESCO. ESCO acknowledges that Agency is induced to enter into this Contract by, among other things, the professional qualifications of ESCO. ESCO agrees that neither this Contract nor any right or obligations hereunder may be assigned in whole or in part to another firm, without the prior written approval of the State. Notwithstanding the provisions of this paragraph, ESCO shall remain jointly and severally liable with its assignees(s), or transferee(s) for all of its obligations under this Contract.

<Note: This assignment provision acknowledges that Agency selected ESCO for its unique expertise and qualifications to perform the services specified in the contract. ESCO may not assign this contract to another ESCO without the written approval of DPW and Agency and any ESCO assigned this contract must fully comply with all terms and conditions. ESCO and any assignee remain contractually liable for fulfilling all of ESCO's obligations as specified in the contract.>

Section 22.2. Assignment by Agency. Agency may transfer or assign this Contract and its rights and obligations herein to a successor or purchaser of the facility(ies) subject to this Contract or an interest therein.

<Note: This provision allows Agency to transfer or assign this contract to a new building owner or occupant. >

SECTION 23. MISCELLANEOUS PROVISIONS

Section 23.1 Nonappropriation of Funds. It is understood and agreed that DPW and Agency are Idaho state government entities and this Agreement shall in no way or manner be construed so as to bind or obligate DPW or Agency beyond the term of any particular appropriation of funds by the State's Legislature as may exist from time to time. DPW reserves the right to terminate this Agreement in whole or in part if, in its judgment, the Legislature of the State of Idaho fails, neglects, or refuses to appropriate sufficient funds as may be required for Agency to continue any payments required under this Agreement. All affected future rights and liabilities of the parties hereto shall thereupon cease within ten (10) days after notice to ESCO. It is understood and agreed that Agency's payments herein provided for shall be paid from Idaho State Legislative appropriations and, in some instances, direct federal funding.

Section 23.2. Waiver of Claims/Liens. ESCO shall obtain and furnish to Agency a Waiver of Claims or Liens from each vendor, material manufacturer and laborer in the supply, installation and servicing of each piece of Equipment.

Section 23.3. Compliance with Law and Standard Practices. ESCO shall perform its obligations hereunder in compliance with any and all applicable federal, state, and local laws, rules, and regulations, in accordance with sound engineering and safety practices and in compliance with any and all reasonable rules of relative to the Premises. ESCO shall be responsible for obtaining all governmental permits, consents, and authorizations as may be

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required to perform its obligations hereunder. Failure in this Contract to specifically identify any applicable law does not affect its applicability.

Section 23.4. Independent Capacity of the Contractor. It is distinctly and particularly understood and agreed between the parties hereto that the state of Idaho is in no way associated or otherwise connected with the performance of any service under this Contract on the part of ESCO or with the employment of labor or the incurring of expenses by ESCO. Said ESCO is an independent contractor in the performance of each and every part of this Contract, and solely and personally liable for all labor, taxes, insurance, required bonding and other expenses, and for any and all damages in connection with the operation of this Contract, whether it may be for personal injuries or damages of any other kind.

Section 23.5. Severability. In the event that any clause or provision of this Contract or any part thereof shall be declared invalid, void, or unenforceable by any court having jurisdiction, such invalidity shall not affect the validity or enforceability of the remaining portions of this Contract unless the result would be manifestly inequitable or unconscionable.

Section 23.6. Complete Contract. This Contract, when executed, together with all Schedules attached hereto or to be attached hereto, as provided for by this Contract shall constitute the entire Contract between both parties and this Contract may not be amended, modified, or terminated except by a written amendment signed by the parties hereto.

Section 23.7. Further Documents. The parties shall execute and deliver all documents and perform all further acts that may be reasonably necessary to effectuate the provisions of this Contract.

Section 23.8. Applicable Law. This Agreement shall be construed in accordance with, and governed by the laws of the state of Idaho. Any action to enforce the provisions of this Agreement shall be brought in state district court in [_____] County, Idaho. In the event any term of this Agreement is held to be invalid or unenforceable by a court, the remaining terms of this Agreement will remain in force. **<Note: May consider using county where Agency is located. Consult counsel.>**

Section 23.9. Notice. Any notice required or permitted hereunder shall be deemed sufficient if given in writing and delivered personally or sent by registered or certified mail, return receipt requested, postage prepaid, or delivered to a nationally recognized express mail service, charges prepaid, receipt obtained, to the address shown below or to such other persons or addresses as are specified by similar notice.

TO ESCO: *<ESCO Name, Attention:, Mailing address.>*
 < Include COPY TO: information for ESCO, if applicable.>

TO AGENCY: *<Agency Name, Attention:, Mailing address.>*
 < Include COPY TO: information for Agency, if applicable. >

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Section 23.10. Headings. Headings and subtitles used throughout this Contract are for the purpose of convenience only, and no heading or subtitle shall modify or be used to interpret the text of any section.

Section 23.11. Handling of Hazardous Materials: All work completed under this Contract must be in compliance with all applicable federal, state and local laws, rules and regulations regarding waste disposal and treatment/disposal of any hazardous materials that could result from this project. In the event ESCO encounters any such materials, ESCO shall immediately notify the project manager and stop work pending further direction from the project manager. DPW may, in its sole discretion, suspend work on the project pending removal of such materials or terminate this Agreement.

Section 23.12. Public Works Contractor's State License Law: ESCO and its subcontractors and sub-subcontractors shall comply with Idaho Code with specific reference to Public Works Contractor's State License Law, Title 54, Chapter 19.

Section 23.13. Construction Manager: If construction management is used, the Construction Manager shall be licensed as a Public Works Construction Manager, and all construction management shall comply with Idaho Code, Title 54, Chapter 45.

Section 23.14. Architects: If applicable, construction work done under this Contract must have plans and specifications approved by an architect licensed in Idaho.

Section 23.15. Permanent Building Fund Advisory Council: ESCO shall make presentations as required related to this Contract to the Permanent Building Fund Advisory Council.

Section 23.16. Employment of Idaho Residents: Pursuant to Sections 44-1001 and 44-1002, Idaho Code, it is provided that each ESCO must employ ninety-five percent (95%) bona fide Idaho residents as employees, except where under such contracts fifty (50) or less persons are employed, ESCO may employ ten percent (10%) non-residents, provided, however, in all cases employers must give preference to the employment of bona fide residents in the performance of said work, and no contract shall be let to any person, firm, association or corporation refusing to execute an agreement with the above-mentioned provisions in it; provided that in contracts involving the expenditure of Federal Aid Funds, this act shall not be enforced in such a manner as to conflict with or be contrary to the federal statutes prescribing a labor preference to honorable discharged soldiers, sailors, or marines, prohibiting as unlawful any other preference or discrimination among citizens of the United States.

Section 23.17. Subcontractor Approval: DPW retains the right to reasonably reject any ESCO-selected subcontractor prior to its commencement of work under this Contract. If not previously provided, names and qualifications must be submitted at least two (2) weeks in advance.

Section 23.18. Bonding Requirements: ESCO will provide to DPW separate performance and labor and material payment bonds, each in the sum of one hundred percent

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(100%) of the cost of the construction work. Bonds shall be issued by a surety rated A-VII or better in the latest *Bests Rating Guide* and in good standing and authorized to transact business in Idaho.

Section 23.19. As-Built Drawings: Where applicable, ESCO must provide durable, reproducible record drawings (and such CADD documents as may be agreed to by DPW and Agency) from the “as-built drawings” of all existing and modified conditions associated with the project, conforming to typical engineering standards. These should include architectural, mechanical, electrical, structural, and control drawings and operating manuals and will be delivered prior to acceptance. Drawing format should be in an electronic format as per AIA standard CAD layering AutoCAD version 2000.

Section 23.20. Follow-up Monitoring/Measurement and Maintenance Services: Following the installation and implementation of improvements, ESCO will be responsible for maintaining and measuring to ensure optimal performance, however, Agency has the option to decline these services or negotiate for a reduced term of services. All maintenance and measurement fees will be paid through guaranteed savings.

Section 23.21. Operation and Maintenance Manuals: At least three (3) maintenance manuals for each site will be provided for all equipment replacements and/or upgrades at each location. Manuals are subject to approval of DPW and Agency.

Section 23.22. Continuing Activities: DPW and Agency reserve the right to make energy and water improvements to the work sites and to monitor the performance of the installations independently of ESCO. Additionally, DPW or Agency may wish to integrate other identified capital needs with ESCO projects, which may or may not contain energy and water savings opportunities.

Section 23.23. Non-Discrimination: ESCO shall comply with all applicable state and federal laws, rules and regulations involving non-discrimination on the basis of race, color, religion, national origin, age or sex.

Section 23.24. Taxes: ESCO, in consideration of securing the business of erecting or constructing public works in this state, recognizing that the business in which it is engaged is of a transitory character, and that in the pursuit thereof, its property used therein may be without the state when taxes, excises, or license fees to which it is liable become payable, agrees:

(i) To pay promptly when due all taxes (other than on real property), excises and license fees due to the state, its sub-divisions, and municipal and quasi-municipal corporations therein, accrued or accruing during the term of this Contract, whether or not the same shall be payable at the end of such term;

(ii) That if the said taxes, excises, and license fees are not payable at the end of said term, but liability for the payment thereof exists even though the same constitute liens upon its property, to secure the same to the satisfaction of the respective officers charged with the collection thereof; and

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(iii) That, in the event of its default in the payment or securing of such taxes, excises, and license fees, to consent that the department, officer, board, or taxing unit entering into this Contract may withhold from any payment due it hereunder the estimated amount of such accrued and accruing taxes, excises, and license fees for the benefit of all taxing units to which said ESCO is liable.

Section 23.25. Contract Re-Negotiation: DPW and Agency reserve the right to renegotiate the terms of the Contract due to changes in the regulatory or utility climates or Agency's non-discretionary use of energy, or if DPW and Agency desire to add sites as identified in the RFQ.

Section 23.26. Preventive Maintenance Schedule: Upon completion of measurement and verification by ESCO, ESCO shall provide to Agency a single comprehensive schedule of necessary preventive maintenance for all installations for the five (5) years following Contract expiration or termination.

Section 23.27. State of Idaho Minimum Wage Law: It will be the responsibility of ESCO to fully comply with Idaho law regarding the minimum wage law for residents hired to help on projects and jobs in Idaho.

Section 23.28. Use of Agency's Name: ESCO agrees that it will not, prior to, in the course of, or after performance under this Agreement use Agency's name in any advertising or promotional media as a customer or client of ESCO without the prior written consent of Agency.

Section 23.29. Officials, Agents and Employees of the State Not Personally Liable: It is agreed by and between the parties hereto that in no event shall any official, officer, employee or agent of the State of Idaho be in any way personally liable or responsible for any covenant or agreement contained in this Contract whether express or implied, nor for any statement, representation or warranty made herein or in any way connected with this Contract.

Section 23.30. Drafting Not to be Construed Against any Party: All parties acknowledge and agree that each has had a full opportunity to review and have input into this Contract and that any ambiguity found shall not be construed against any party as drafter. Reference to "year" shall mean calendar year unless a fiscal year is specified. If a fiscal year is specified that year is July 1 through June 30.

IN WITNESS WHEREOF, and intending to be legally bound, the parties hereto subscribe their names to this Contract by their duly authorized officers on the date first above written.

<Name of ESCO>

<Name of Agency>

By: _____

By: _____

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(Signature)

(Name and Title)

(Signature)

(Name and Title)

DIVISION OF PUBLIC WORKS

By: _____
Larry V. Osgood, Administrator

ATTACHMENT I: Schedules, Exhibits, Appendices

SCHEDULE A. EQUIPMENT TO BE INSTALLED BY ESCO

<Note: Schedule A: This schedule will be furnished by ESCO based on the final Audit Report. It should specify all of the newly installed equipment including manufacturer, quantity, location and warranties (you can also have a separate schedule for warranties). This schedule should also describe any modifications that may have been made to existing equipment, if applicable.>

SCHEDULE B. DESCRIPTION OF PREMISES; PRE-EXISTING EQUIPMENT INVENTORY

<Note: Schedule B: This schedule is based on the final Audit Report. It contains basic information about the condition of the premises at the time of contract execution. Such information would include facility square footage, building construction, use, occupancy, hours of operation etc., and any special conditions that may exist.

The inventory is important to include for the purpose of identifying what equipment was in place and how it was configured at the time of contract execution. This schedule is important to the accurate establishment of baseline, savings measurement and may need to be referred to in the later years of the contract.>

SCHEDULE C: ENERGY SAVINGS GUARANTEE

<Note: Schedule C: This schedule should fully describe all provisions and conditions of the energy saving guarantee provided by ESCO. The guarantee should be defined in units of energy to be saved for the duration of the contract term and provide a mechanism to calculate dollar savings. Reference to the annual reconciliation of achieved vs. guaranteed savings should be included (there is also language in the body of the contract regarding annual reconciliation See Section 4.2).>

<Note: Actual savings of energy costs attributable to all measures for each year of the contract should be more than the calculated savings for that year.>

<Note: This schedule should contain the projected energy savings in units for each year of the contract. Often these projections are broken down on a measure by measure basis, although

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some measures may be aggregated into general categories such as lighting or HVAC. If there are several buildings involved in the project, this schedule should contain projections for each facility, even though they may all be covered under a single guarantee.>

SCHEDULE D: COMPENSATION TO ESCO

<Note: Schedule D: This should contain the amount and frequency of any payments that may be made to ESCO for maintenance, measurement and verification or other services negotiated as part of the contract. It should contain information about how the compensation is calculated (e.g. a percentage of savings above and beyond the guarantee, flat fee etc.), and if an annual inflation index is to be used to escalate fees over the duration of the contract term. An hourly fee structure can also be included to cover ESCO costs for any services provided beyond the scope agreed to at the time of contract execution. If ESCO is not the financing arm and will be paid for audit services previously performed, that could be included here.>

SCHEDULE E: BASELINE ENERGY CONSUMPTION

<Note: Schedule E: The baseline energy consumption is the "yardstick" by which all savings achieved by the installed project will be measured. The methodology and all supporting documentation used to calculate the baseline should be in this schedule including unit consumption and current utility rates for each fuel type. This schedule may also include baseline documentation regarding other cost savings such as material savings (e.g. bulbs, ballast, filters, chemicals etc.), and cost savings associated with the elimination of outside maintenance contracts. >

<For each site or project, the baseline and post-installation energy use will usually be defined using metering, billing analysis and/or engineering calculations (including computer simulations) either individually or in combination. In addition, values for certain factors that affect energy use and savings that are beyond ESCO's control may be stipulated using historical data, analyses and/or results of spot or short-term metering. Agency or ESCO can define baseline conditions. If Agency defines the baseline, ESCO will have the opportunity to verify it. If the baseline is defined by ESCO, Agency will have the opportunity to verify.

<Baseline physical conditions (equipment inventory and conditions, occupancy, nameplate data, energy consumption rate, control strategies, etc.) are typically determined through well-documented audits, surveys, inspections and/or spot or short-term metering. This documentation will define the baseline for calculating savings and document baseline conditions in case future changes require baseline energy use adjustments.>

SCHEDULE F: SAVINGS CALCULATION FORMULAE; METHODOLOGY TO ADJUST BASELINE

<Note: Schedule F: This schedule contains a description of the energy savings measurement, monitoring and calculation procedures used to verify and compute the savings performance of the installed equipment. This calculation will include a method to compare the level of energy that would have been consumed without the project (referred to as the "Baseline") with what

amount of energy actually consumed during a specific time period (monthly, quarterly, etc.). All methods of measuring savings including engineered calculations, metering, equipment run times, pre- and post-installation measurements, etc. should be explicitly described for all equipment that is installed.

Periodically (typically on an annual basis), the baseline will be adjusted to account for the prevailing conditions (e.g., weather, billing days, occupancy, etc.) during the measurement period. All methodologies used to account for any adjustments to the baseline needs to be clearly defined in this schedule.

Use FEMP Measurement and Verification Guidelines. You will need to incorporate these by reference. Be sure to identify by current year, edition or version.>

Examples of baseline adjustments include: change in the amount of space being air conditioned, changes in auxiliary systems (towers, pumps, etc.), and changes in occupancy or schedule. For example, if a chiller retrofit was completed in a building with 100,000 square feet of conditioned space and during the contract term the conditioned space is reduced to 75,000 square feet, post-installation energy use would be lower making savings higher. If there are no records of the amount of originally conditioned space, the baseline could not be adjusted. Baseline adjustments for issues such as changes in production shifts, facility closures, adding new wings or loads (such as computer labs) require a conceptual approach versus a method to cover each eventuality. Clearly predictable annual variations are usually handled through established procedures for each identified factor in the savings formulas. Permanent changes, such as changes in square footage, are handled through agreement clauses that allow predictable or expected changes and/or through a “re-open” clause that allows either party to renegotiate the baseline.>

<A Facility Changes Checklist or other method may be provided by ESCO for Agency to notify ESCO of any changes in the facility that could have an impact on energy use (occupancy, new equipment, hours of use, etc.). This checklist is generally submitted on a monthly or quarterly basis.>

SCHEDULE G: CONSTRUCTION AND INSTALLATION SCHEDULE

<Schedule G: The timetables and milestones for project construction and installation should be contained in this schedule. If so desired, documentation of required insurance, and subcontractor lists may be included in this schedule or broken out into a separate schedule. NOTE: It is important that the construction/installation phase of the project (for example bonds and insurance) be treated in compliance with individual institutional requirements and the appropriate governing statutes. Since construction is just one component of the overall project, a separate construction contract may be desirable and in some cases necessary. The construction contract would then be referred to in the body of the contract and attached as an exhibit, appendix or other type of attachment. Another approach would be to consolidate the appropriate construction language for inclusion in the body of the final contract. This will need to be decided as appropriate on a case-by-case basis.>

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SCHEDULE H: SYSTEMS START-UP AND COMMISSIONING; OPERATING PARAMETERS OF INSTALLED EQUIPMENT

<Note: Schedule H: This section should specify the performance testing procedures that will be used to start-up and commission the installed equipment and total system. The schedule also provides for Agency to be notified of and have the right to be present during all commissioning procedures. This schedule should contain a provision for the documentation of Agency's attendance at the various tests and acceptance of ESCO's certification that the tests followed the specified procedures and met or exceed the expected results. Use of manufacturer's start up and performance sheets are required.

<The operating parameters should contain any specified parameters for the operation of the installed equipment such as temperature setbacks, equipment run times, load controlling specifications and other conditions for the operation of the equipment.>

SCHEDULE I: STANDARDS OF COMFORT

<Note: Schedule I: The standards of comfort to be maintained for heating, cooling, lighting levels, hot water temperatures, humidity levels and/or any special conditions for occupied and unoccupied areas of the facility should be explicitly described in this schedule. >

SCHEDULE J: ESCO'S MAINTENANCE RESPONSIBILITIES

<Note: Schedule J: A complete description of ESCO's specific operations and maintenance responsibilities should be included in this schedule along with the time intervals for their performance of the stated O&M activities.>

SCHEDULE K: AGENCY'S MAINTENANCE RESPONSIBILITIES

<Note: Schedule K: This schedule describes the operations and maintenance responsibilities that may be assigned to facility staff as agreed to by both parties. In some instances it will contain no more than a description of routine O&M currently being performed on existing energy consuming equipment in the facility. In other cases, facility staff may be used to provide some maintenance on the new equipment installed under the performance contract, with ESCO providing any specialized services as needed.>

SCHEDULE L: FACILITY MAINTENANCE CHECKLIST

<Note: Schedule L: This checklist is a method by which ESCO may record and track compliance with operations and maintenance procedures performed by facility personnel. The checklist typically specifies simple list of tasks and the corresponding schedule for the performance of the prescribed procedures. Facility staff will complete the checklist and forward it to ESCO, usually on a monthly basis. (This checklist is a very useful tool for both ESCO and Agency to verify that the required maintenance activities are being performed at the scheduled intervals).

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SCHEDULE M: ESCO'S TRAINING RESPONSIBILITIES

<Note: Schedule M: The description of ESCO's training program or sessions for facility personnel should be contained in this schedule. The duration and frequency of the specified training should also be included. Any provisions for on-going training, commitments to train newly hired facility personnel, and training with respect to possible future equipment or software upgrades should also be described. Any fees associated with requests for training beyond what ESCO is contractually bound to provide should also be specified.>

SCHEDULE N: GENERAL CONDITIONS

<Note: Schedule N: Where applicable, insert standard GENERAL CONDITIONS. Where referenced in Section 1.2, describe which of the paragraphs of the general conditions apply to this contract.>

SCHEDULE O: ANNUAL INSTALLMENT PAYMENT SCHEDULE

<Schedule O: This schedule contains the amortized financing payments to be made to the financing institution for the total, itemized capitalized costs (principal and interest) of the project. This schedule will indicate the frequency (monthly, quarterly semi-annually) of payment, the specific amount due. The actual lease agreement and associated documents are located in Appendix D. This Schedule may identify the costs of the audit that the ESCO will expect to recover, if ESCO is the financing institution. If ESCO is not the financing institution, be sure to identify in some schedule the costs of the audit that ESCO will be paid for.>

SCHEDULE P: PRE-EXISTING SERVICE AGREEMENTS

<Note: Schedule P: Include information on the scope and cost of pre-existing equipment service contracts. This gives Agency and ESCO information about how and when existing equipment is being serviced. If ESCO is credited with any maintenance savings or is taking over any existing service contracts, the scopes and costs of these agreements will be useful in tracking the performance of ESCO in providing required services and documenting attributable cost savings.>

SCHEDULE Q: CURRENT AND KNOWN CAPITAL PROJECTS AT FACILITY

<Note: Schedule Q: Include a description or discussion of any current or planned capital projects to be implemented. This information could prove useful in the out-years of the contract to avoid potential disputes over long-term energy savings performance. An installment payment/amortization schedule may need to be included depending on the type of financing used.>

SCHEDULE R: PROJECTED FINANCIAL PERFORMANCE

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<Note: Schedule R: This schedule should include a spreadsheet depiction of expected financial performance of the project for the entire contract term. It should clearly identify all financial components of the project including interest rates, current fuel prices, any escalation rates to be applied, guaranteed savings, ESCO compensation figures, cash-flow projections and projected Net Present Value of any cumulative positive cash flow benefits to the building owner.>

EXHIBITS

EXHIBIT I CERTIFICATE OF ACCEPTANCE — INSTALLED EQUIPMENT

APPENDICES

APPENDIX A: TECHNICAL ENERGY AUDIT REPORT AND PROJECT DEVELOPMENT

APPENDIX B: RFQ

APPENDIX C: ESCO PROPOSAL

APPENDIX D: LEASE AGREEMENTS AND DOCUMENTS (if applicable)

ADDITIONAL OPTIONAL SCHEDULES

<The following schedules can be included as optional and included or combined with others or may be contained in the audit report, as desired. If any of the following schedules are used, references to these schedules may need to be added to the contract body.>

ENERGY SAVINGS PROJECTIONS

<This schedule should contain the projected energy savings in units for each year of the contract. Oftentimes these projections are broken down on a measure by measure basis although some measures may be aggregated into general categories such as lighting or HVAC. If there are several buildings involved in the project, this schedule should contain projections for each facility, even though they may all be covered under a single guarantee.>

FACILITY CHANGES CHECKLIST

<A "Facility Changes Checklist" or other method may be provided by ESCO for the client to notify ESCO of any changes in the facility that could have an impact on energy consumption (e.g. occupancy, new equipment acquisition, hours of use etc.). This checklist is generally submitted on a monthly basis or quarterly basis.>