

# **STATE ENERGY MANAGEMENT PLAN**

For State Facilities in Florida



## **ADDENDUM 1** **EXPECTED IMPLEMENTATION COSTS**

**February 2010**

## **Introduction**

The information presented by the Department of Management Services (DMS) in this report includes the estimated costs to implement the sub-metering components of the State Energy Management Plan (SEMP). This document serves as a guide to assist the agencies in developing budget plans to implement the SEM. The costs contained in this report are estimates and may not be sufficient for unusually difficult installations.

The SEM requires the gathering of data from monthly utility bill statements. This report assumes that such activities already occur within each agency and will present no added cost, administrative or otherwise. The costs developed in this report also assume that the agencies will bear any administrative costs required to set-up and implement the utility reporting system presented in the SEM.

## **Energy Management & Control System (EMCS) Sub-Meter Costs**

Table 1 describes the estimated installation costs for the various EMCS sub-meters described in the SEM. These estimated costs are based on current input from Heating, Ventilation, and Air Conditioning (HVAC) control system vendors and include all expected materials and labor. Supervisory Control & Data Acquisition (SCADA) vendors were not included in this analysis because generally such systems are considerably more expensive than HVAC control systems. However, agencies are encouraged to seek pricing information from any potential vendor.

**Table 1: Meter Devices**

Meter Device	Installed Cost
<b>Electric sub-meter (digital energy monitor)</b>	<b>\$10,000</b>
<b>BTU meter (HVAC)</b>	<b>\$10,000</b>
<b>Steam meter (HVAC)</b>	<b>\$12,000</b>
<b>Domestic water meter</b>	<b>\$10,000</b>
<b>Natural gas meter</b>	<b>\$10,000</b>
<b>Fuel oil &amp; diesel meter*</b>	<b>\$10,000</b>

\* Derived from natural gas meter cost

Table 1 represents the estimated costs for the meter devices but does not include the estimated costs for field panels and other infrastructure required to connect with such devices remotely. The estimated cost to install one field panel with an on-board web server program capable of connecting to enough meter devices for one building is approximately \$10,000. There should be no added cost for situations where the agency already has EMCS capabilities in the building.

## **Typical Building Configurations**

The cost to implement the SEM will vary based on building type. Table 2 lists various building types and the estimated implementation costs. The estimated costs shown in Table 2 are based on the sub-metering requirements and minimum equipment sizes found in Chapter 3 of the SEM. For example, HVAC sub-metering is generally expected for office buildings larger than 20,000 square feet and all correctional facilities. Such buildings are assumed to have HVAC equipment larger than 50 tons in capacity, which is the minimum equipment size required by the

SEMP to have sub-metering. Likewise, small office buildings and small dormitories are only expected to have sub-metering installed on the main building electrical feed.

Assuming each building requires a communication field panel, the estimated costs to implement the sub-metering requirements of the SEMP range from \$20,000 to \$52,000 per building, depending on the building type and size. The estimated implementation costs, excluding the cost of communication field panels, should range from \$10,000 to \$42,000 per building, depending on the building type and size.

**Table 2: Building Type & Expected Meter Configurations (Includes Communication Panels)**

Building Type	Expected Meter Devices	Device Costs	Total Cost
<b>Office, courthouse, school (&gt; 20,000 sq. ft.)</b>	Main bldg. feed (electric)	\$10,000	<b>\$40,000</b>
	HVAC cooling (BTU meter)	\$10,000	
	HVAC heating (BTU meter)	\$10,000	
	Communication field panel	\$10,000	
<b>Office, courthouse, school (5,000 to 20,000 sq. ft.)</b>	Main bldg. feed (electric)	\$10,000	<b>\$20,000</b>
	Communication field panel	\$10,000	
<b>Correctional facilities and large dormitory facilities</b>	Main bldg. feed (electric)	\$10,000	<b>\$52,000</b>
	HVAC cooling (BTU meter)	\$10,000	
	HVAC heating (steam meter)	\$12,000	
	Domestic water heating	\$10,000	
	Communication field panel	\$10,000	
<b>Small dormitory facilities</b>	Main bldg. feed (electric)	\$10,000	<b>\$20,000</b>
	Communication field panel	\$10,000	

### **Summary & Recommendation**

The agencies are encouraged to use Table 2 to develop budget pricing estimates. The cost for communication field panels (\$10,000) does not apply when agencies already possess communication capabilities through existing EMCS systems.

For office buildings, DMS recommends that initial budget requests be approximately \$20,000 per building as a rule of thumb. DMS recommends that initial budget requests be approximately \$40,000 per building as a rule of thumb for more complex facilities such as correctional institutions, large dormitories, and laboratories. The cost for complex facilities may be less due to the fact that one communication field panel will likely be able to serve more than one building in a campus environment.

DMS expects the agencies will modify the budget recommendations made here to account for their familiarity with their existing buildings. DMS further recommends that agencies modify future budget requests as implementation of the SEMP progresses. Actual costs may be less as a result of implementing a state term contract for sub-meter installations.