

UPS Policy Purpose:

It is the policy of the Oregon Office of Emergency Management, 9-1-1 Program (OEM) to provide the resources from the 9-1-1 Sub-account to purchase, repair, replace, upgrade, and provide preventative maintenance contracts for critical 9-1-1 equipment to ensure uninterrupted performance of 9-1-1 operations at all Public Safety Answering Points (PSAP) in Oregon.

PSAPs shall first obtain approval from OEM to authorize expenditure for such purposes. Consideration shall be given to those PSAPs requiring emergency replacement or repair of critical equipment where it was not possible to obtain prior approval from OEM due to emergency needs.

**Section 1: Uninterruptable Power Supply coverage requirements.**

Per OAR 104-080-0040(3)(b), the use of Uninterruptable Power Supply (UPS) in the PSAP shall be to maintain power, to critical 9-1-1 equipment between the time commercial electric power is lost, and the startup, leveling off, and coming online of an onsite backup generator or other device.

Not all the equipment in the PSAP requires UPS coverage in the event of a loss of commercial power. The critical equipment to be covered by the UPS, based upon NENA recommendations is:

1. **ALI Link Modems and Network Interfaces** – These are intrinsic components of the CPE equipment found in E9-1-1 Call Taker Equipment.
2. **ANI and ALI Controllers** – Stand-alone CPE component which provides ANI and ALI decoding and function key control for 9-1-1 service.
3. **CDR Printer** – The printer used for printing out information gathered from the Call Data Recorder.
4. **E9-1-1 Call Taker Equipment** – Emergency telephone system equipment which includes network switching, data base and CPE elements capable of providing Selective Routing, Selective Transfer, Fixed Transfer, caller routing, location information and ALI.
5. **Intelligent Workstation (IWS) common equipment** – Computer based 9-1-1 answering position equipment that includes computer telephony integration.
6. **PSAP Master Clock** – An accurate timing device that generates synchronization signals to control other clocks or equipment in the PSAP.
7. **TDD/TYY Devices** – A device capable of information interchange between compatible units using a dial up or private line telephone network connections as the transmission medium.
8. **Telephone Common Equipment** – A private telephone network that includes multifunction telephones that are connected to common equipment by a voice signal path and a data signal path.

Determining the size or capacity of UPS needed is calculated by first determining the power requirements of the equipment to be covered by the UPS. The power requirements are found by multiplying the *Volts* required for a piece of equipment, by the *Amps* for the same piece of equipment. This equals the *VA* rating.

The VA ratings of each piece of equipment is then added together to make the total VA rating. Determining the KVA is done by dividing the total VA rating, by 1,000. One KVA equals 1,000 VA's.

Since UPS capacity is based also on VA or KVA rating, it is fairly simple to determine what UPS capacity or size a PSAP might need. For instance, if the total KVA rating for all the critical equipment in the PSAP is 4.7 KVA, then a 5 KVA or larger UPS is probably needed.

There are other items to be considered for proper sizing of the UPS. Consultation with PSAP equipment maintenance personnel or a trusted vendor is recommended as to the specific UPS needs of the PSAP.

## **Section 2: Guidelines of determination of KVA allotment and funding by OEM from the 9-1-1 Sub-account.**

In order to provide for the varied type of equipment found in all PSAPs in the state, OEM developed a *KVA allotment* based upon the number of 9-1-1 Sub-account funded workstations in each PSAP. To determine the KVA allotment, the number of 9-1-1 Sub-account funded workstations is multiplied by 3 KVA and the result is the KVA allotment for that PSAP.

OEM will then provide resources from the 9-1-1 Sub-account to fund all expenditures for UPS up to the KVA allotment for the PSAP.

- I. The PSAP will first need to determine how much UPS KVA / VA capacity they have and whether it is within the KVA allotment for the PSAP.

To determine the current level of KVA capacity, each PSAP Director (or designee) shall list each UPS in their facility currently providing UPS coverage to equipment required for 9-1-1 call taking. This documentation shall list each UPS by:

- a) Brand;
- b) Model;
- c) Serial Number; and
- d) KVA / VA rated capacity of each UPS.

The Director shall then total the KVA / VA capacity of all listed UPS.

If the total KVA / VA capacity of the UPS(s) listed is less than the KVA allotment, then all of the UPS(s) that are listed can be designated for 100% funding from the 9-1-1 Sub-account.

If the total KVA / VA capacity of the UPS(s) listed is more than the KVA allotment, then the PSAP Director must designate specific UPS(s) that when combined, totals to a KVA / VA capacity that is equal to or less than the KVA allotment. Only expenditures for those UPS(s) that are designated would be allowed funding from the 9-1-1 Sub-account.

This listing of all designated UPS shall be provided to OEM. Hereafter only those UPS(s) that have been designated as within the KVA allotment of the PSAP will be considered for funding from the 9-1-1 Sub-account.

Examples of correctly designating UPS can be found in *Appendix A*.

- II. Each PSAP Director shall have the authority to select the vendor for service, replacement or preventative maintenance contract for the designated UPS(s).

As funding is based upon the designation of specific UPS(s), any quote for service from a vendor must include the following information:

- a) Brand, Model and Serial number of each UPS to be serviced; and
- b) Extent of service to each UPS; and
- c) Total cost (time and materials) for each UPS.

All quotes submitted to OEM for UPS funding from the 9-1-1 Sub-account must have this information. If not included, the quote will be returned to the PSAP as unapproved until such time that the required information is provided.

An example of these requirements for quotes can be found in *Appendix A, Example 4*.

### Section 3: Limitations

The funding from the 9-1-1 Sub-account as stated in this policy shall be limited to costs for the service, replacement or preventative maintenance contracts for UPS(s) that are designated as being within the KVA allotment of the PSAP. It is expected that the PSAP Director shall show “due diligence” as to its actual needs when determining UPS size, vendor and pricing.

***NOTE:*** *The KVA allotment is only a limitation for funding; it is NOT a determination as to the actual or specific UPS needs of any PSAP.*

PSAP Directors should make use of the recommendations by personnel responsible for the equipment or a trusted vendor in regards to the UPS needs of the PSAP. Any costs associated with consulting, designing, developing or determining the type, size, location placement or vendor for the UPS shall be funded by the PSAP.

OEM shall maintain the listings of the designated UPS of all PSAP and shall document and update any service or replacement of each designated UPS by serial number. If at any time the total KVA / VA capacity of designated UPS(s) exceeds the KVA allotment of a PSAP, the Director shall be notified by OEM and the PSAP Director will have to re-designate the UPS(s) for funding.

Any addition to or reduction in the number of 9-1-1 Sub-account funded 9-1-1 workstations will have a corresponding increase or reduction in the KVA allotment.

The final determination of UPS coverage shall be at the PSAP Director’s discretion, taking into account the specific needs of the PSAP as to equipment to be provided coverage. If the PSAP Director desires to provide for additional UPS coverage above the KVA allotment, the additional cost of service, replacement, or maintenance contract above the KVA allotment, shall be the responsibility of the PSAP.

Consideration shall be given to those PSAP that request and provide documentation that shows that additional UPS coverage above the KVA allotment is needed. Additional funding from the 9-1-1 Sub-account above the KVA allotment shall be on an individual case basis based upon this documentation.

**Section 4: Approval and Reimbursement of costs**

Prior to any purchase or service of a designated UPS, the PSAP Director or designee must first gain approval from OEM. Quotes showing the full cost, as well as any information as required in Section 2 (II), shall be submitted to OEM via email or regular mail. OEM and the PSAP shall first agree on a “not to exceed” amount, based on this policy, prior to approval of any quote submitted to OEM. The PSAP Director or designee must have an approval from OEM via email, prior to any expenditure that is expected to be reimbursed by OEM from the 9-1-1 Sub-account.

*NOTE: Consideration shall be given to those PSAPs requiring immediate replacement or repair of a UPS where it was not possible to obtain prior approval from OEM due to emergency needs.*

The OEM shall make direct payments on behalf of a 9-1-1 jurisdiction or payments for reimbursement only after a reimbursement or payment request has been submitted to the OEM in a manner prescribed by OEM. Reimbursement or payment request for UPS needed for support of the 9-1-1 jurisdiction must be submitted directly to the OEM including the prior approval authorization.

**Appendix A: Examples.**

Example 1 shows a PSAP that has more total UPS capacity than their KVA allotment. The Director must decide upon and designate which specific UPS(s) whose combined capacity is within the KVA allotment.

**Example 1:** PSAP “A” UPS listing;

<u>Number</u>	<u>Brand</u>	<u>Serial #</u>	<u>KVA/VA Capacity</u>
#1	APC	125885	1.5 KVA
#2	Powerware	45PW501	1.5 KVA
#3	Powerware	128667	6.0 KVA
#4	Best	81EP0511	<u>3.0 KVA</u>
		<b>TOTAL KVA</b>	<b>12 KVA</b>
<u># of workstations</u>	<b>X</b>	<u>per workstation allotment</u>	<b>=</b> <u>KVA allotment</u>
3		3 KVA	9 KVA

PSAP “A” Director decides to designate UPS 1, 2 and 3 for 100% funding because the combined capacity of these three UPSs equals the KVA allotment for the PSAP. And since the KVA allotment has been reached, UPS #4 may not be designated and would not be eligible for funding.

Example 2 shows a PSAP that has only one facility wide UPS that provides coverage to more than 9-1-1 call taking equipment in the PSAP. Since the KVA capacity of this one UPS is more than the KVA allotment, a percentage of the UPS to be covered by funding must be found and designated.

**Example 2:** PSAP “B” UPS listing;

<u>Number</u>	<u>Brand</u>	<u>Serial #</u>	<u>KVA/VA Capacity</u>
#1	APC	40APC3379	40 KVA
<u># of workstations</u>	<b>X</b>	<u>per workstation allotment</u>	<u>= KVA allotment</u>
3		3 KVA	9 KVA

To determine the correct percentage for funding, divide the KVA allotment by the KVA capacity of the UPS.

**9 KVA / 40 KVA = 22.50%**

The result is the percentage of all expenditures that will be covered by funding. In this case 22.50% of the total cost of any service, replacement or maintenance contract, would be funded. The remainder of the cost would be the responsibility of the PSAP.

In Example 3, the PSAP is unable to designate specific UPS(s) to fulfill their full KVA allotment. So there may be times in which the Director may have to designate a certain percentage of one UPS for funding to match the KVA allotment.

**Example 3:** PSAP “C” UPS listing;

<u>Number</u>	<u>Brand</u>	<u>Serial #</u>	<u>KVA/VA Capacity</u>
#1	Best	KL6185	2.0 KVA
#2	Powerware	5016877	6.0 KVA
#3	APC	66740WD	<u>4.0 KVA</u>
		<b>TOTAL KVA</b>	<b>12 KVA</b>
<u># of workstations</u>	<b>X</b>	<u>per workstation allotment</u>	<u>= KVA allotment</u>
3		3 KVA	9 KVA

The Director decides to designate UPS 1 and 2 for 100% funding, but this uses only 8 KVA of the 9 KVA allotment, this leaves one KVA of allotment available. The Director wishes to use the one remaining KVA of the KVA allotment on UPS #3. In order to do this, a percentage has to be determined. This is done by dividing the remaining one KVA of the KVA allotment by the KVA/ VA capacity of UPS #3.

**1 KVA / 4 KVA = 25.00%**

The PSAP would also designate 25.00% of UPS #3 for funding along with 100% funding for UPS 1 & 2.

In Example 4 is a sample quote provided by a vendor for UPS service. All required information is provided specific to each UPS. This quote is based upon the UPS designation shown in Example 1.

**Example 4:** PSAP “A”, vendor quote for service;

<b>Samletown Electric Co.</b>		<b>Quote# 12-123</b>		
<u>Brand</u>	<u>Serial #</u>	<u>Work</u>	<u>Cost</u>	
#1	APC	125885	Replace 2 batteries & preventative maintenance	Materials – \$415.33 Labor – \$125.00
#2	Powerware	45PW501	Preventative maintenance	Labor – \$95.00
#3	Powerware	128667	Preventative maintenance	Labor - \$95.00
#4	Best	81EP0511	Replace 3 batteries & preventative maintenance	Materials – \$780.22 Labor – \$125.00
			<b>TOTAL QUOTE</b>	<b>\$1,635.55</b>

Based upon the designation by PSAP “A” of UPS #1, 2 and 3 for funding, the costs for this quote would be on a “not to exceed” amount of \$730.33 which is the total cost for UPS 1, 2 and 3. As UPS #4 was not able to be designated, the remaining cost for UPS #4 in the amount of \$905.22 would be the responsibility of the PSAP.

Please contact any member of the OEM 9-1-1 Program with any questions in regards to determining the KVA allotment and designating of UPS for funding by OEM.