# EXPLANATION OF TYPICAL/PRESCRIPTIVE MEASURE CHANGES

## NOVEMBER 12, 2013

### Lighting Incentives

Table 1 highlights the proposed lighting measure changes, including modifications to align with changes in federal lighting standards.

**Table 1**
**Retrofit Lighting Changes**

| Measure | Change | Reason for Change |
|---|---|---|
| Linear Fluorescent | As of January 1, 2014, modify the baseline for fluorescent lighting to be 32W T8 lamps with electronic ballasts that are minimally compliant with federal efficacy standards. | More stringent federal efficacy standards for general service linear fluorescent lamps have been in effect for nearly 18 months, and market data indicates that T8 lamps now represent the vast majority of lamps sold. Shift the baseline to match the industry standard baseline. |
| Linear Fluorescent, T8, Standard | Remove measure from incentive table. | Incentives are no longer available for Standard T8's since this measure has a sunset date of July 14, 2012. Continue to offer incentives for "premium" low-wattage or high performance T8 lamps/ballasts. |
| Linear Fluorescent, T8, Delamp | Clarify eligibility requirements. | Adjust eligibility requirements to indicate corresponding sockets must be removed or permanently disabled. |
| Linear Fluorescent, T8, High Bay | Clarify eligibility requirements. | Adjust eligibility requirements to more clearly delineate eligible replacement fixtures and applications. |
| Linear Fluorescent, T8, Continuous Operation | Add measure for CEE qualified T8 lamps and ballasts in a continuous operation application. | Add a higher incentive in alignment with higher savings achieved from premium T8 lighting installed in a continuous operation application to encourage greater adoption. |
| Linear Fluorescent, T5, Continuous Operation | Add measure for T5 lamps and ballasts in a continuous operation application. | Add a higher incentive in alignment with higher savings achieved from T5 lighting installed in a continuous operation application to encourage greater adoption. |
| Daylighting Control | Clarify eligibility requirements. | Adjust eligibility requirements to include interior fixtures with drivers (i.e. LEDs), and require at least 50% reduction in output of connected fixtures. |

Table 2 highlights the proposed changes to new construction and major renovation lighting measures.

**Table 2**
**New Construction/Major Renovation Lighting**

| Measure | Change | Reason for Change |
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| Exterior Lighting, LED Parking Garage | Remove measure from exterior lighting classification. | Parking garages are considered an interior space as part of the State energy code, resulting in market confusion about available incentives. Incentives will be paid at $0.08/kWh annual energy savings as described in the eligibility requirements for "Interior Lighting" |

**Mechanical and other Energy Efficiency Incentives**

Table 3 summarizes modifications for existing HVAC, building envelope, food service, appliances and office energy efficiency measures included in the program.

**Table 3**
**Summary of Proposed Changes to Existing** HVAC, Building Envelope, Food Service, Appliances and Office **Energy Efficiency Measures**

| Measure Category | Measures | |
|---|---|---|
| HVAC | Unitary commercial air conditioners and heat pumps | Update deemed costs to align with market data. |
| | PTAC/PTHP Occupancy Based Controller | Revise eligibility to include door-key occupancy sensors in addition to infrared/ultrasonic sensors. |
| Other HVAC Equipment and Controls | Evaporative Cooling | Remove Industry Standard Rating (ISR). Overly restrictive eligibility requirement. ISR does not apply to all evaporative cooling equipment and has restricted program participation. |
| | Indirect-Direct Evaporative Cooling (IDEC) | Update incentive rate $/kWh to be consistent with wattsmart Business rate of $0.15/kWh annual energy savings. |
| | Chillers | Update incentive rate $/kWh to be consistent with wattsmart Business rate of $0.15/kWh annual energy savings. |
| | Portable Classroom HVAC Control | Revise eligibility to include occupancy based thermostat control in addition to 365/366 scheduling. |
| | Residential Room Air Conditioner (used in a Business) | Update eligibility/incentives and reported costs/savings to align with the Home Energy Savings program. |
| Building Envelope | Window Film | Update incentive rate $/kWh to be consistent with wattsmart Business rate of $0.15/kWh annual energy savings. |
| Food Service | Commercial Dishwasher | Update deemed savings/costs and incentive to align with ENERGY STAR specification |

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| | | update and current industry standard baseline.<br>Remove eligibility requirement of electrically heated DHW, but require electric booster heater to increase program participation. Savings will vary based on DHW energy source. |
| | Refrigerator/Freezer | Discontinue offering incentives for solid door refrigerators/freezers. Very limited savings potential relative to industry standard baseline. |
| | Electric Insulated Holding Cabinet | ENERGY STAR specification now aligns with previous Tier 2 eligibility requirements. Update deemed costs/savings and maintain ENERGY STAR eligibility requirements (previously Tier 2). Discontinue Tier 2 incentive offering. |
| | Electric Combination Oven | Update deemed savings/costs and incentive to align with pending ENERGY STAR specification update (effective 1/1/2014). Add/define size category to account for large differences in incremental costs. |
| | Electric Convection Oven | Update deemed savings/costs and incentive to align with pending ENERGY STAR specification update (effective 1/1/2014). |
| | Electric Griddle | Discontinue offering incentives for ENERGY STAR Tier 1 electric griddles. Negligible incremental cost difference and small savings between standard and ENERGY STAR Tier 1 qualified products. Adjust eligibility requirements to ENERGY STAR Tier 2 qualified models only. Update deemed costs/savings. |
| | Electric Steam Cooker | Tier 1 – Update deemed costs/savings.<br>Tier 2 - Adjust eligibility requirements and deemed savings/costs and incentive to align with revised RTF data. |
| | Electric Commercial Fryer | Tier 2 - Adjust eligibility requirements and deemed savings/costs and incentive to align with revised RTF data. |
| | Air-Cooled Ice Machines | Update deemed savings/costs and incentive to align with ENERGY STAR specification update. |
| | High Efficiency Refrigerated Beverage Vending Machine | Incentives are no longer available for this measure since it has a sunset date of August 31, 2012. |
| | LED Case Lighting | Update deemed savings and costs to align with revised RTF data. |

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| | Residential Refrigerator (used in a Business) | Update eligibility/incentives and reported costs/savings to align with the Home Energy Savings program. |
| | Residential Dishwasher (used in a Business) | |
| Appliances | Commercial Clothes Washer | Update incentives, deemed costs/savings to align with market data for ENERGY STAR qualified models.<br><br>Remove incentives for CEE Tier 3 qualified models as CEE has suspended its commercial clothes washer specification. |
| | Residential Water Heater (Used in a Business) | Update eligibility/incentives and reported costs/savings to align with the Home Energy Savings program. |
| | Residential Clothes Washer (Used in a Business) | |
| Office | Network Power PC Management | Update deemed savings and costs to align with data from NWPCC 6th Plan RTF since RTF measure is now limited to K-12 schools. . Update eligibility criteria to controlled laptop computers for higher savings certainty. |
| | Smart Plug Strip | Update deemed savings and costs to align with revised data from RTF. |

To further increase participation and the comprehensiveness of the program and streamline program administration, the Company is requesting approval to add new measures to existing measure categories, as detailed below in Table 4. In addition, there are new industrial and ag measures described in Tables 5, 6 and 7.

**Table 4**
**New Measures**

| **Measure Category** | **Measure** | **Description** |
|---|---|---|
| HVAC | Variable Refrigerant Flow (VRF) Heat Pump/AC | Offer a prescriptive incentive for VRF systems, which are an increasingly requested HVAC option in small/medium commercial buildings. Align eligibility requirements with CEE high-efficiency HVAC specification and calculate savings based on building type, climate and size of system. |
| | Evaporative Pre-Cooling | Offer a prescriptive incentive (based on air conditioning equipment size) for equipment that pre-cools air before it reaches the air conditioner condenser coil. |
| Food Service (Refrigeration) | Anti-Sweat Heater Controls | Offer prescriptive incentives (per linear foot of refrigerated case) for anti-sweat heater controls installed in retrofit applications. Align deemed |

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| | | savings/costs with recently approved RTF UES data. |
| Food Service | Demand-Controlled Kitchen Ventilation | A simplified calculator tool should be utilized to estimate savings based on kitchen operating hours, climate, and HVAC system efficiency. Incentives offered on a $/kWh saved basis. |
| | Residential Refrigerator/ Freezer Recycling | Allow non-residential customers to participate in the residential refrigerator and freezer recycling program for qualifying residential refrigerators and freezers used in a business. |

**Table 5**
**Modifications for Irrigation Incentives for Wheel Lines, Hand Line, or Other Portable Systems, and Pivot and Linear Systems.**

| Measure Category | Description of Change | Reason for Change |
|---|---|---|
| Irrigation | Revise Unit Energy Savings (UES) for each measure based on April 2013 RTF values for leakage or avoided excess irrigation together with average values for pumping lift, discharge pressure, and annual runtime specific to areas served by Pacific Power in Washington. | The Regional Technical Forum updated its estimates of flow reduction for each irrigation measure in April 2013, utilizing the results of a study by Dr. Howard Neibling of the University of Idaho (Evaluation of Sprinkler Irrigation System Components in Southern Idaho, March 5, 2013). These flow reduction values inform updated UES for each of the five regions addressed by the RTF – Eastern & Southern Idaho, Western Idaho, Western Washington and Oregon, Eastern Washington and Oregon, and Montana. Average values for pumping lift, pump discharge pressure, and annual runtime for each of these areas is applied to the flow reduction to derive energy savings. The same process is used to derive energy savings for the areas served by PacifiCorp, using values specific to those areas. |
| | Revise savings for nozzle measure from 28.0 kWh per nozzle to 26.0 kWh per nozzle. Revise incentive from $0.25 to $0.50 per nozzle. | Leakage identified in Neibling study slightly less than previously adopted PacifiCorp value. Adjust incentive to cover higher percentage of estimated current customer costs to increase participation. All nozzles on wheel line or hand line must be replaced to help maintain system application uniformity and to facilitate program quality assurance activities. |
| | Revise savings for flow | Leakage identified in Neibling study slightly |

| Measure Category | Description of Change | Reason for Change |
|---|---|---|
| | control nozzle measure from 28.0 kWh per nozzle to 26.0 kWh per nozzle. Revise incentive from $1.50 to $2.75 per nozzle. | less than previously adopted PacifiCorp value. Adjust incentive to cover higher percentage of estimated current customer costs to increase participation. All nozzles on wheel line or hand line must be replaced to help maintain system application uniformity and to facilitate program quality assurance activities. |
| | Revise savings for impact sprinkler measure from 45.0 kWh per sprinkler to 34.9 kWh per sprinkler. Revise incentive from $3.00 to $2.25 per sprinkler. | Over irrigation due to lack of uniformity identified by the Neibling study slightly less than previously adopted PacifiCorp value. Adjust available incentive for best alignment with current estimate of customer costs and available savings. |
| | Redefine the measure addressing rotating, spray-type, or low pressure sprinklers. For wheel lines or hand lines, define a rotating sprinkler measure using the same UES and incentive as the impact sprinkler measure. For pivot and linear applications, define a measure combination with sprinkler, regulator, and nozzle. The sprinkler may be any type of low pressure sprinkler. UES and incentive for the combination are 115.6 kWh/yr and $7.50. | For wheel line and hand line applications, replacing impact sprinklers with rotators delivers energy savings and better application uniformity and is comparable to replacing worn impact sprinklers. . Savings and costs are similar, and rotators have a slight uniformity advantage. This particular measure is not defined in the RTF 2013 workbooks likely given low adoption in the Northwest.<br><br>For pivots and linears, the RTF moved to combine pressure regulators and low pressure sprinklers (with nozzle) into a single measure, given complexity of attributing lack of uniformity to a failed regulator, worn nozzle, or both. Field experience also suggests if one component is worn, the other is likely to be worn also. As a result, the standalone pressure regulator measure has been removed. |
| | Revise savings for gasket measure from 45.0 kWh per gasket to 156.7 kWh per gasket. Revise incentive from $1.00 to $2.00 per gasket. | Neibling study showed significantly higher average flow per leaking gasket than previously assumed. To maximize energy savings, only leaking gaskets would be incented, however this requirement would be administratively challenging. As a result, the UES for this measure has been de-rated by 25%, assuming that 25% of gasket replacements are pre-emptive rather than replacement of active leakers. Incentive adjusted upward to reflect |

| Measure Category | Description of Change | Reason for Change |
|---|---|---|
| | | greater available savings and is designed to be approximately half of the estimated average material cost. |
| | Revise savings for drain measure from 45.0 kWh per gasket to 162.4 kWh per drain. Revise incentive from $1.00 to $3.00 per drain. Measure applies for drains on pivots and linears as well as wheel lines and hand lines. | Same rationale as for gaskets above. |
| | Revise savings for pipe repair measure from 89.0 kWh per leak repaired to 103.9 kWh per leak repaired. Revise incentive from $8.00 to $10.00 per leak repaired. Change wording from $ per joint to $ per leak repaired. | Neibling study indicates higher average leakage per pipe leak than prior assumptions. Incentive adjusted upward to better reflect current market costs and encourage participation. Language change from "pipe" to "leak" since more than one leak in a pipe section may be repaired. |
| | Revise savings for Thunderbird wheel line hub measure from 89.0 kWh to 90.0 kWh per hub. Revise incentive from $10.00 to $12.00 per hub. | Increase incentive slightly to better reflect market costs and encourage participation. |
| | Revise savings for leveler measure from 22.0 kWh to 51.8 kWh per leveler. Revise incentive from $0.75 to $3.00 per leveler. | Neibling study indicates higher average flow per leaking leveler than previously assumed. Increase incentive amount align with available savings and encourage participation. |
| | Revise savings for wheel line feed hose measure from 224.0 kWh to 210.2 kWh per hose. Revise incentive from $15.00 to $12.00 per hose. | This measure not addressed in Neibling study or contained in RTF workbooks. Previous leakage value has been retained. Savings adjusted based on territory specific information on pumping lift and annual runtime. Incentive adjusted to better align with available savings and estimated customer costs. |
| | Revise gooseneck and drop tube measure to separate the two into a | Combined measure had been designed to address conversion of pivots from impact sprinklers on top to low pressure sprinklers on |

| Measure Category | Description of Change | Reason for Change |
|---|---|---|
| | gooseneck measure and a drop tube measure. Define savings as 8.8 kWh/yr from gooseneck and 8.8 kWh/yr from drop tube. Revise incentive from $1.00 each for the combination to $0.50 for the gooseneck and $2.00 for the drop tube. | drop tubes. To better align with operational field practices, this measure has been separated to allow replacement of old drop tubes on existing pivots without replacing goosenecks. Separating the measure is consistent with updated RTF workbook. |
| | Revise savings for center pivot base boot basket from 965.0 kWh to 1,681.3 kWh. Revise incentive from $80.00 to $125.00 each. | Leakage unchanged from previous version, but average pumping lift is approximately twice the previous value. This is an RTF measure. |
| | Add new tower gasket measure with UES of 42.0 kWh/yr and incentive of $4.00 per gasket. | RTF added measure as part of 2013 update but it's not in the current PacifiCorp program. Added measure for completeness and consistency using RTF UES. Incentive set based on available savings. |
| | Expand eligibility for the pump VFD measure to include new construction projects. Clarify that efficient pumping plant equipment serving fixed in place systems are eligible (unlike flow reduction measures on the irrigation distribution equipment). | Tying pump VFD eligibility solely to retrofit installations precluded new construction pumping installations from being eligible. Fixed in place systems may have diverse pumping profiles which provide the opportunity for energy savings. |
| | Apply project level caps (percent of project costs and one-year payback) to all irrigation measures. | Customer costs for irrigation measures vary widely and per unit savings are comparatively small. While incentives are set to be a portion of (but not exceed) the measure costs, having caps project cost and simple payback caps consistent with the custom project offer in the program aligns program delivery with design intent and simplifies marketing to customers and trade allies. |

Table 6 summarizes modifications for the Farm and dairy measures.

**Table 6**
**Farm and Dairy**

| Measure Category | Description of Change | Reason for Change |
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| Farm and Dairy | Revise the basis for determining incentives for the heat recovery measure. | The previous incentive for heat reclaim – using heat rejected from the milk refrigeration system to offset electric water heating – was calculated as $220 per condenser kW. The revised approach uses a calculator to directly calculate energy savings from lbs milk/day, temperature differences, and information about the refrigeration system.<br>Incentive rate is aligned with the custom project rate, $0.15/kWh annual savings up to 70% of measure cost.<br>This is a measure in the existing program and currently utilizes site specific calculations. The RTF does not maintain UES value(s) for this measure. |
| | Revise incentive rate for milk pre-cooler measure from the previous $0.12/kWh plus $50/kW to the new custom rate of $0.15/kWh with project level caps (percent of project costs and one-year payback). | This revision brings the incentive rate for milk pre-coolers into alignment with the standard custom rate.<br><br>This is a measure in the existing program and currently utilizes site specific calculations. The RTF does not maintain UES value(s) for this measure. |
| | Add new measure: Variable Frequency Drives for fans in potato or onion storages. | Potato and onion storage fan VFDs have been eligible for custom incentives in the current programs. Key variables affecting energy consumption and available savings can be gathered. The measure is well suited to utilize a calculator to determine savings. Making potato/onion storage fan VFDs a listed measure enables rapid turnaround on the incentive process, low cost administration, and optimal participation by vendors and growers. The RTF has maintained a UES (on a per HP basis) for this measure in the past. In 2012 the RTF adopted the recommendation to move this measure to Out of Compliance status with sunset date of November 1, 2013. |
| | Apply project level caps (percent of project | Customer costs for Farm and Dairy measures vary. While incentives are set to be a portion of |

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| | costs and one-year payback) to all Farm and Dairy measures. | (but not exceed) the measure costs, having project cost and simple payback caps consistent with the custom project offer in the program aligns program delivery with design intent and simplifies marketing to customers and trade allies. |

**Table 7**
**Compressed Air**

| Measure Category | Description of Change | Reason for Change |
|---|---|---|
| Compressed Air | Revise savings for zero loss condensate drain from 0.14590 kWh per hour of operation per year to 786.37 kWh/yr. Revise incentive from $90 each to $100 each. | Using average annual system runtime to determine Unit Energy Savings is a simpler approach for this small system measure than collecting runtime for each system to calculate system-specific savings. Experience over time with the program has led to an annual average runtime close to the DOE estimated average. This runtime has been used to simplify the UES value. Measure cost has increased slightly, and available savings support a slight increase in incentive to help further increase participation. The RTF does not maintain UES(s) for any compressed air measure(s). |
| | Revise savings for cycling refrigerated dryer from 0.00242 kWh per scfm per hour of operation per year to 12.73 kWh/scfm per year. Revise incentive from $1.50/scfm to $2.00/scfm. For projects where a new dryer is installed along with a new air compressor, use the Northwest Regional Compressed Air Tool to calculate dryer savings and pay the incentive at $0.15/kWh with project level caps (percent of project costs and one-year payback)rather than | Same note as above regarding runtime and RTF Incentive slightly increased to encourage participation. Cycling dryers installed with a compressor may take advantage of the fact that the load profile for the specific installation has already been estimated. The NW Regional Compressed Air calculator can calculate actual dryer savings using the compressor load profile and can package the presentation of compressor and dryer economics into the same single sheet presentation for the decision maker. Hence the use of the custom approach for the dryer when purchased in conjunction with a compressor. |

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| | using the Unit Energy Savings kWh and incentive value. | |
| | Revise savings for receiver capacity addition measure from 0.00249 kWh per gallon per hour of operation per year to 13.10 kWh per gallon per year. Revise incentive from $1.50 per gallon to $3.00 per gallon of receiver capacity above the first 2 gallons/scfm of trim compressor capacity. | Same note as above regarding runtime and RTF. Incentive has been increased to encourage participation. |
| | Revise savings for low pressure drop filter measure from 0.00129 kWh per scfm per hour of operation per year to 6.79 kWh per scfm per year. Revise incentive from $0.80 per scfm to $2.00 per scfm. | Same note as above regarding runtime and RTF Incentive has been increased to encourage participation. |
| | Revise savings for outside air intake measure from 0.00931 kWh per hp per hour of operation per year to 48.97 kWh per hp per year. Incentive remains unchanged. | Same note as above regarding runtime and RTF. |
| | Remove the constraint on the VFD compressor measure that the system be comprised of only a single operating compressor (not counting backup capacity). Allow VFD compressors to be treated as listed measures as long as the compressor receiving the incentive is installed in a system | Clarifies program design intent to focus on smaller systems with identifiable key variables that affect energy consumption and savings. Second machines may be in place for back-up purposes and may not materially affect available energy savings. Eliminates confusion when a customer wishes to install VFD compressor in a system with a second fixed speed compressor that operates at times to keep up plant pressure and the total system is less than 75 hp in total capacity. Systems with multiple compressors can be handled through a combination of calculators and program staff engineering calculations outside of the |

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| | with total capacity of 75 hp or less, not counting backup compressor(s) that do not normally run. | calculator. |
| | For the VFD compressor measure, remove the constraint that "compressor must not use inlet modulation when demand is below the minimum speed threshold of the VFD compressor." | Aligns program eligibility with best available market information on how various manufacturers control a compressor when demand for compressed air is less than that delivered by the machine once the VFD has slowed to its minimum allowable speed. Some of these methods are more efficient than others, yet the net effect on savings is minimal given the amount of time system typically is in this operating mode. Removing the language broadens the equipment options for customers. |
| | Add compressed air end use reduction as a new listed measure. Use the NW Regional Compressed Air Tool to estimate savings and pay $0.15/per kWh with project level caps (percent of project costs and one-year payback). | Inefficient uses of compressed air are very common in industry. Where functionally equivalent alternatives are available, savings can be had by undertaking small projects to make a change in the system. Examples include replacing simple blowing applications with engineered nozzles, using electric pumps in place of air operated pumps, and adding isolation valves to close off a portion of a distribution system when not operating (saving on leak load). Compressed air savings in cfm may be estimated by program staff, and the NW Regional Compressed Air tool may then be used to estimate savings and incentives. This approach makes such small projects feasible to administer. |
| | Apply project level caps (percent of project costs and one-year payback) to all Compressed Air projects. | Customer costs for Compressed Air measures vary. While incentives are set to be a portion of (but not exceed) the measure costs, having project cost and simple payback caps consistent with the custom project offer in the program aligns program delivery with design intent and simplifies marketing to customers and trade allies. |

**Table 8**
**Waste Water and Other Refrigeration**

| Measure Category | Description of change | Reason for Change |
|---|---|---|
| Other – Refrigeration, Wastewater | Add adaptive refrigeration control as a new listed measure. Use calculator to estimate savings and pay at the custom rate of $0.15/per kWh with project level caps (percent of project costs and one-year payback). | Adaptive refrigeration controllers replace conventional thermostat, defrost time clock and defrost termination controls in refrigerated spaces cooled by unitary systems. Projects are typically small, with savings ranging from 2,000 to 20,000 kWh per controller, depending on system size. Savings is readily determined using nameplate information and operating schedules. These opportunities are efficiently administered as a calculator-based listed measure. The RTF has maintained a floating head pressure control UES for single systems. The RTF measure derives savings from different control points in the refrigeration system. In addition, in December of 2012, the RTF adopted the recommendation to change the measure status to Out of Compliance with sunset date of December 31, 2013. |
| | Add fast acting door as a new listed measure. Use calculator to estimate savings and pay at the custom rate of $0.15/per kWh with project level caps (percent of project costs and one-year payback). | Fast acting doors replace manually operated doors, automatic doors with long cycle times, strip curtains, or entryways with no door at all in refrigerated or conditioned space. Savings is highly situation specific. A calculator-based listed measure takes into account the details of each situation, while affording an efficient administrative approach. |
| | Add low power mixer as a new listed measure. Use calculator to estimate savings and pay at the custom rate of $0.15/per kWh with project level caps (percent of project costs and one-year payback). | Low power mixers, also called extended range circulators, take the place of high powered mixers or the practice of using aeration for mixing in wastewater treatment ponds. A calculator-based approach is an effective method of generating leads and administering project using the custom incentive rate and cap. |