

**EXHIBIT NO. ____ (MBM-6)
DOCKETS UE-151871/UG-151872
PSE EQUIPMENT LEASING SERVICE
WITNESS: MALCOLM B. MCCULLOCH**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

**Dockets UE-151871
UG-151872**

**FIFTH EXHIBIT TO THE PREFILED DIRECT TESTIMONY OF
MALCOLM B. MCCULLOCH
ON BEHALF OF PUGET SOUND ENERGY**

February 25, 2016

Figure 1 – Residential Gas Furnace Installation Specification

Cost Component	What should be included in flat rates?
Site Check	<ol style="list-style-type: none"> 1. Perform heat loss & Manual J calculations 2. Take material measurement 3. Verify installation will meet code (venting, combustion air, gas pipe, clearances, etc.) 4. Draft work order for installation 5. Schedule installation date 6. Secure customer signature on PSE form(s)
Permit Handling	<ol style="list-style-type: none"> 1. Handling fee for obtaining standard permit (mechanical) and associated labor and inspection time – where applicable
Standard Installation	<ol style="list-style-type: none"> 1. Conduct duct blaster 2. Shut off power 3. Shut off gas line and disconnect 4. Disconnect 115 v and 24 V wiring 5. Remove and dispose of old furnace 6. Design and build transitions 7. Cut sheet metal to transition points 8. Install furnace 9. Install new sheet metal, filter channel and standard filtration system 10. Seal internal and external joints 11. Install and/or reconnect venting 12. Hook up, inspect and test fuel line 13. Hook up 115v wiring from J-box to furnace

Cost Component	What should be included in flat rates?
	<ul style="list-style-type: none"> 14. Install fan switch or connect to t-stat 15. Hook up internal 24 v controls and t-stat 16. Fire off unit, check combustion and firing rate <ul style="list-style-type: none"> a. Check combustion of water heater if common venting used) 17. Set fan speed, check all controls, run through heating cycle 18. Check all safety operations 19. Clean site 20. Review T-stat settings with customer to optimize their goals/system performance 21. Discuss installation and operation with homeowner

Figure 2 – Residential Gas Furnace Installation Exclusions

Cost Component	What should be included in flat rates, or considered as supplemental?
Standard Installation	<ul style="list-style-type: none"> 1. Crawl space or attic installation 2. Relocation of furnace 3. Relocating gas line 4. Relocating venting over 5. Additional supply or return runs 6. Increasing duct size 7. Code upgrades <ul style="list-style-type: none"> o Adding combustion air o B vent o PVC/Condensate/ Condensate pump

	<ul style="list-style-type: none">o Increasing gas line size per codeo Securing gas line to code <ol style="list-style-type: none">8. Extending gas lines for additional appliances9. Priming and painting gas line10. T-stat relocation or rewiring installs11. Installing new or smart t-stat12. Advanced air filtration system13. Controls add-ons (temperature/humidity sensor)14. Cutting sheetrock15. Relighting other appliances if fuel line removed past G valve16. Whole house duct sealing17. Air conditioning
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