PJM Manual 15:
Cost Development Guidelines

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4.4 Hot Start Cost, Intermediate Start Cost, and Cold Start cost

**Note:** The information in Section 2.4 contains basic Start Cost information relevant for all unit types. The following information only pertains to fossil steam units.

In some instances, a Steam Unit may enter a state called “Extended Cold Start”. Steam units in this state calculate the Start Cost information associated with this state in accordance with the “Cold Start Cost” Section below and enter this value into the “Cold Start Cost” field in eMKT.

\[
\text{Start Cost (\$/Start)} = \\
\text{[Start Fuel Consumed (MBTU/Start) \times TFRC(\$/MBTU) \times Performance Factor] +} \\
\text{[Station Service (MWh) \times Station Service Rate(\$/MWh)] + Start Maintenance Adder (\$/Start) + Start Additional Labor Cost (\$/Start)}
\]

### 4.4.1 Hot Start Cost

Hot start cost is the expected cost to start a steam unit, which is in the "hot" condition. Hot conditions vary unit by unit, but in general, a unit is hot after an overnight shutdown. Components of hot start cost include:

**Total fuel-related cost** are the costs from first fire of start process to breaker closing (including auxiliary boiler fuel) priced at the cost of fuel currently in effect including shutdown fuel cost defined as the cost of fuel expended from breaker opening of the previous shutdown to initialization of the (hot) unit start-up, excluding normal plant heating/auxiliary equipment fuel requirements.

**Station Service** from initiation of start sequence to breaker closing (total station use minus normal base station use) priced at the Station Service rate and station service after breaker opening during shutdown (station service during shutdown should be that associated with the normal unit auxiliary equipment operated during shutdown in excess of base unit use, this station service is not to include maintenance use or non-normal use) priced at the Station Service rate.

**Additional labor costs** in excess of normal station manning requirements that are incurred when starting the unit.

**Start Maintenance Adder** Section 2.6 contains information regarding calculation of Maintenance Adder.

### 4.4.2 Intermediate Start Cost

Intermediate start cost is the expected cost to start a steam unit during a period where neither hot nor cold conditions apply. Use of intermediate start cost is optional based on company policy and physical machine characteristics. The only restriction is that once an intermediate start cost is defined for a unit, the cost must be used consistently in scheduling and accounting. Components of intermediate start cost include:

**Total fuel-related cost** is the cost from first fire to breaker closing (including auxiliary boiler fuel) priced at the cost of fuel currently in effect, and shutdown fuel cost defined as the cost
of fuel expended from breaker opening of the previous shutdown to initialization of the (intermediate) unit start-up, excluding normal plant heating/auxiliary equipment fuel requirements.

**Station Service** from initiation of start sequence to breaker closing (total station use minus normal base station use) priced at the Station Service rate and station service after breaker opening during shutdown (station service during shutdown should be that associated with the normal unit auxiliary equipment operated during shutdown in excess of base unit use, this station service is not to include maintenance use or non-normal use) priced at the Station Service rate.

**Additional labor costs** in excess of normal station manning requirements that are incurred when starting the unit.

**Start Maintenance Adder** Section 2.6 contains information for calculation of the Maintenance Adder.

### 4.4.3 Cold Start Cost

Cold start cost is the expected cost to start a steam unit that is in the "cold" condition. Cold conditions vary unit by unit, but in general, a unit is cold after a two or three-day shutdown. Components of cold start cost include:

**Total fuel-related cost** from first fire to breaker closing (including auxiliary boiler fuel) priced at the cost of fuel currently in effect, and shutdown fuel cost defined as the cost of fuel expended from breaker opening of the previous shutdown to shutdown of equipment needed for normal cool down of plant components, excluding normal plant heating/auxiliary equipment fuel requirements.

**Station Service** from initiation of start sequence to breaker closing (total station use minus normal base station use) priced at the Station Service rate and station service after breaker opening during shutdown (station service during shutdown should be that associated with the normal unit auxiliary equipment operated during shutdown in excess of base unit use, this station service is not to include maintenance use or non-normal uses) priced at the Station Service rate.

**Additional labor costs** in excess of normal station manning requirements that are incurred when starting the unit.

**Start Maintenance Adder** Section 2.6 contains information for calculation of the Maintenance Adder.