

CDS Immature Unit Proposal: Requested Examples

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Purpose

In April 2012, CDS reviewed interest investigation and filled out the collaborative solution matrix design criteria for immature units. The following was agreed upon:

1. Immature unit status will be for units that have less than 30,000 equivalent service hours and less than 10 years of operational history.
2. Immature units may blend calculated cost and forecasted cost to be reviewed by IMM
 - a. The weighted blend should be based on the ratio of historical operating hours to projected,
 - b. Or achieving ten years of operation,
 - c. With priority going to the one satisfied first
3. A Mature unit chooses either a 10 or 20 year history and then it uses actual costs
4. Market Participant estimates are based on methodologies such as, but not limited to:
 - a. Regional industry average
 - b. Industry average in PJM
 - c. Budgeted value for the business case
 - d. Information from OEM
 - e. Information from sister units

Examples:

In April 2012, CDS requested 2 examples:

Example 1 - A Combustion Turbine with 5,000 equivalent service hours after 10 years with unknown maintenance history

In this example the unit owner does not have the necessary information to compute historical maintenance costs. This unit could use:

- a. Regional industry average
- b. Industry average in PJM
- c. Budgeted value for the business case
- d. Information from OEM
- e. Information from sister units

The unit owner decides to use the budgeted value from the business model of \$25/ESH initially and a ten year maintenance history. In the following years the unit's VOM would be calculate as follows:ⁱ

Year	ESH	VOM Calculation
1	6000	$(\text{Year 1 Actual} + (9 * \$25/\text{ESH})) / 10$
2	7000	$(\text{Year 1+2 Actual} + (8 * \$25/\text{ESH})) / 10$
3	8000	$(\text{Year 1+2+3 Actual} + (7 * \$25/\text{ESH})) / 10$
4	9000	$(\text{Year 1+2+3+4 Actual} + (6 * \$25/\text{ESH})) / 10$
5	10000	$(\text{Year 1+2+3+4+5 Actual} + (5 * \$25/\text{ESH})) / 10$
6	11000	$(\text{Year 1+2+3+4+5+6 Actual} + (4 * \$25/\text{ESH})) / 10$
7	12000	$(\text{Year 1+2+3+4+5+6+7 Actual} + (3 * \$25/\text{ESH})) / 10$
8	13000	$(\text{Year 1+2+3+4+5+6+7+8 Actual} + (2 * \$25/\text{ESH})) / 10$
9	14000	$(\text{Year 1+2+3+4+5+6+7+8+9 Actual} + (1 * \$25/\text{ESH})) / 10$
10	15000	$(\text{Year 1+2+3+4+5+6+7+8+9+10 Actual}) / 10$ Unit is now Mature

Example 2 - Base load steam unit with 3 years of operational history and a 65% capacity factor

This unit has 17,098 hours and will most likely hit the 30,000 ESH mark in year 6 of operation. This unit would initially use 3 years actual, 3 years forecasted. In the following years the units' VOM for a 10 year maintenance history would be calculated as follows:ⁱⁱ

Year	ESH	VOM Calculation
3	17098	(Year 1+2+3 Actual + (3 * \$2/mmBtu)) / 6
4	22792	(Year 1+2+3+4 Actual + (2 * \$2/mmBtu)) / 6
5	28486	(Year 1+2+3+4+5 Actual + (1 * \$2/mmBtu)) / 6
6	34180	(Year 1+2+3+4+5+6 Actual) / 6 Unit is now Mature
7	39874	(Year 1+2+3+4+5+6+7 Actual) / 7
8	45568	(Year 1+2+3+4+5+6+7+8 Actual) / 8
9	51262	(Year 1+2+3+4+5+6+7+8+9 Actual) / 9
10	56956	(Year 1+2+3+4+5+6+7+8+9+10 Actual) / 10

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ⁱ We are ignoring the effects of inflation and use of the Handy Whitman Index for simplicity's sake.

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