



MIC Special Session

Variable Operations & Maintenance Costs (VOM)

Summary of Proposed Packages

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- Special Session on VOM Costs has developed four proposed packages for consideration:
 - IMM Package – only short run marginal operating costs can be included in a unit's cost-based energy offer. All maintenance/labor costs are included in the unit's capacity offer.
 - PJM Package – only maintenance costs attributed to running the unit and directly tied to electric production can be included in a unit's incremental energy offer.
 - Energy Operations & Maintenance (EOM) package – allow fixed or variable O&M costs not recovered in the capacity market to be included in a unit's incremental energy offer.
 - Default VOM Package – Allow resources to utilize no greater than a default value for Variable O&M, utilizing new build data published by the U.S. Energy Information Administration (EIA).

NOT RUN

ACR

Avoidable Cost Rates

FIXED

Avoidable costs

- Plant Staff
- Taxes
- Fees
- Insurance
- Carrying Charges
- Fuel Availability

RUN

VOM-M15

Variable Operations and Maintenance – Manual 15

ONE TO TEN YEARS

Major overhauls and inspections

- CT Hot Gas Path Inspections
- Turbine Overhaul
- Boiler Overhaul
- CT and CC Overhaul & Major Inspection Excluded June 15, 2015

ANNUAL

Annual repairs from operating

- Pump/Valve Repair
- Boiler Tube Leak Repair
- CT Air Filter Replacement

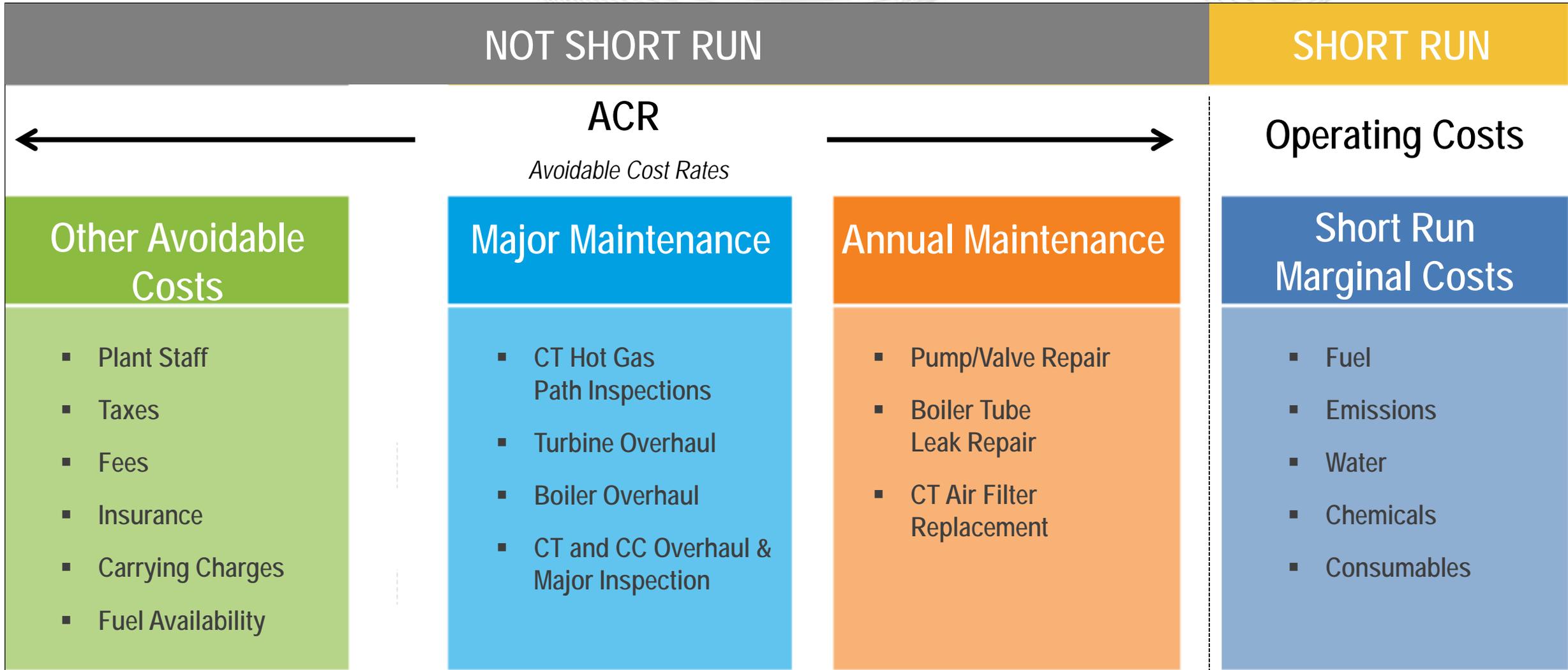
OPERATING DAY

Short run marginal cost

- Short Run Marginal Cost
- Water
- Chemicals
- Consumables

- Only operating costs (short run marginal costs) can be included in a unit's cost-based energy offer.
- Operating costs can be calculated:
 - Actual current costs.
 - Average for a 12 month period (updated annually or monthly).
 - Equal to benchmark by unit type provided by the MMU.
 - Method must be specified in FCP.
- For transparency, M15 will list all allowable operating costs.
 - Market Sellers will be able to include other operating costs if approved. New operating costs will be included in the M15 list during the manual's annual review.

- Replace “incremental” with “short run marginal” in OA Schedule 2 and Manual 15.
- Starting and peaking cyclic factors are not included.
- All maintenance/labor costs are included in the unit’s capacity offer.
 - Remove all costs that are not short run marginal costs from M15 and OA Schedule 2.
 - Revise Net Cone calculation to include labor and maintenance costs.
 - Market Sellers will be allowed to include projected maintenance expenses in their ACR.



- Only maintenance costs attributed to running the unit and directly tied to electric production can be included in a unit's incremental energy offer.
 - CT and CC major inspection, overhaul and LTSA cost can be included
 - Capacity units cannot include ACR fixed cost (i.e. normal labor & maintenance not tied to running)
 - Energy Only Resources can include ACR fixed cost
 - FERC Accounts minus labor cost can be included
 - Remove fixed Title V and emissions fees
- Immature units can use existing history (less than 10 years) or PJM defaults

- Operating costs can be included in a unit's incremental energy offer but not its VOM.
 - Allowable operating costs include lubricants, chemicals, Limestone, Trona, Ammonia, acids, caustics, water injection, and demineralizers.
 - Market Sellers will be allowed to include additional operating costs via the 1.8 exception process. Acceptable items will be added to M15 during the biennial revision.

NOT RUN

ACR

Avoidable Cost Rates

FIXED

Avoidable costs

- Plant Staff
- Taxes / Fees/ Insurance
- Carrying Charges
- Fuel Availability
- Energy Only Resources can include ACR fixed cost in VOM

RUN

VOM-M15

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ONE TO TEN YEARS

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- Turbine Overhaul
- Boiler Overhaul
- CT and CC Overhaul & Major Inspection
- FERC accounts cost minus labor

ANNUAL

Annual repairs from operating

- Pump/Valve Repair
- Boiler Tube Leak Repair
- CT Air Filter Replacement
- FERC account cost minus labor

Operating Costs

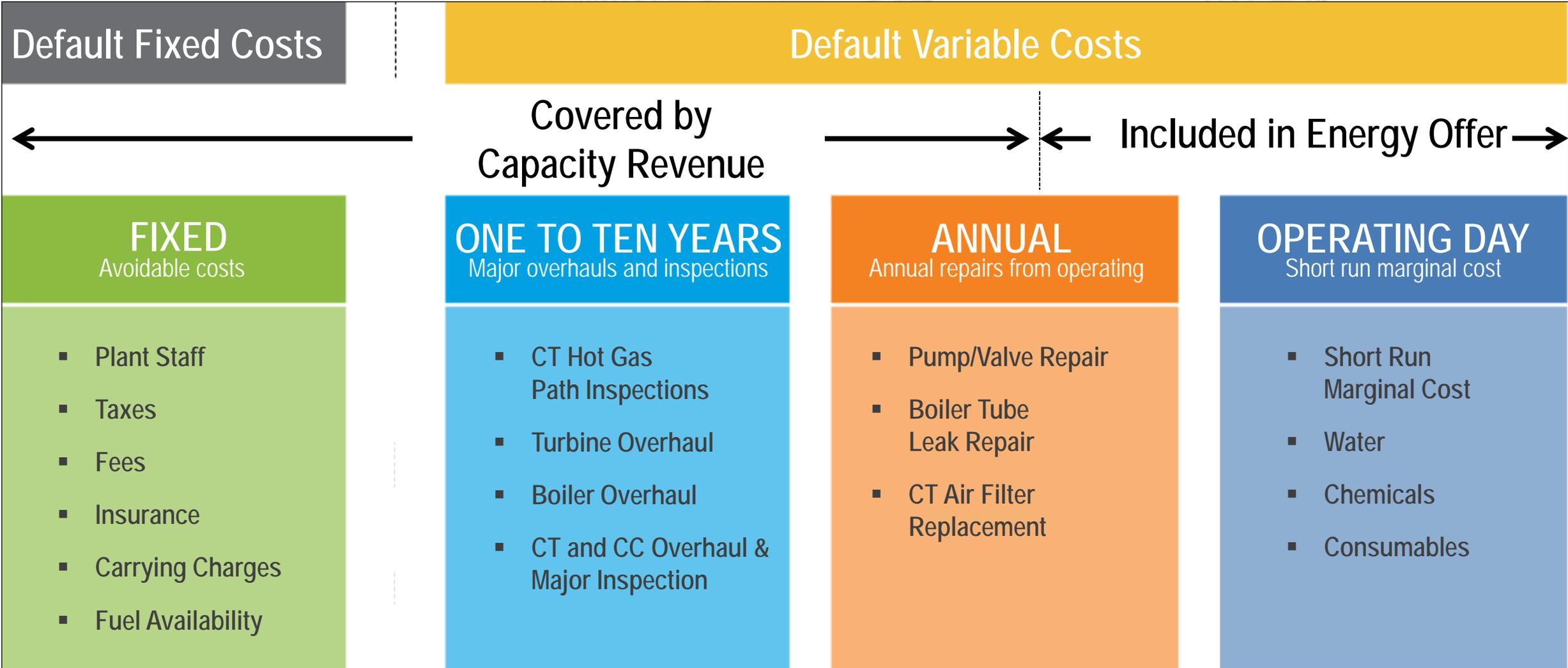
OPERATING DAY

Short run marginal cost

- Short Run Marginal Cost
- Water
- Chemicals
- Consumables

- Allow fixed or variable O&M costs not already recovered in the capacity market to be included in a units incremental energy offer.
 - Create default Unit O&M values by resource type which includes typical non-capital related fixed & variable O&M expenses and a default adder (\$/MW-day) to reflect CP risks & capital project cost
 - Units can request a PJM approved unit specific O&M value representing actual historical O&M expenses
 - Allows non-capacity resources an opportunity for cost recovery via the energy market.

- Units calculate an EOM adder (\$/MWh) that can be used in their incremental energy offer:
 - $$\text{EOM} = \left\{ \left[(\text{Default OM} - \text{RPM Clearing price}) * \text{Cleared UCAP} / \text{Unit UCAP} \right] + \left[\text{Default OM} * \text{Energy Only MW Quantity} / \text{Unit ICAP or Max Facility output} \right] \right\} / 24 \text{ hours}$$
 - EOM is considered to be \$0/MWh if negative



- Allow resources to utilize no greater than a default value for Variable O&M, utilizing new build data published by the U.S. Energy Information Administration (EIA). If these values are insufficient, the resource may seek an approval of costs via PJM, with review by the market monitor.
 - Creates resource class specific default Unit Variable O&M values that cannot be exceeded, unless higher actual costs are approved by PJM.

- If EIA no longer publishes new-build data for a class of resource, the existing unit may utilize annual scalars (e.g. 1.5%) applied to the last EIA published data to represent an updated default value.

Fixed

EIA

Fixed O&M

Do not vary with generation

- Staff & monthly fees
- General & Admin plant expenses
- Routine preventive & predictive maintenance
- Maintenance of Structures & Grounds

Default VOM by Resource Class

VOM-EIA

Variable Operations and Maintenance

Major Maintenance

- Scheduled Overhauls
- Major Maintenance Labor
- Major Maintenance Spare Parts Costs
- BOP Major Maintenance

ANNUAL

Production related costs

- Purchase Power, Demand Charges, and related Utilities
- Wastewater Disposal Expense

OPERATING DAY

Production related costs

- Water
- Chemicals, Catalyst & Gases
- Lubricants
- Ammonia, Lime, Urea, or other chemicals for Emission Reductions
- Consumables