



Monitoring
Analytics

Avoidable Cost Rate
Template Version 10 Instructions
RPM/ACR Data Submission per PJM OATT
Attachment DD, Section 6.7

Monitoring Analytics
The Independent Market Monitor for PJM
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Avoidable Cost Rate Template Version 10 Instructions

Description of Revision Final

The Final ACR Template Version 10 is the only template should be used to upload ACR data to the Monitoring Analytics RPM/ACR application.

The Final ACR Template Version 10 provides the participant the option to complete the detailed staffing information or bypass inputting the detailed staffing information. Now both options are available on one template to facilitate the participant's response to Monitoring Analytics. The ACR template also has eliminated the percent avoidable drop downs and any MS Excel logic formulae which control the percent avoidable input or maximum percent avoidable input. It also provides for the selection and input of the technology specific default ACR for upload to the RPM/ACR application. New in Version 10 is the ability to enter segmented opportunity costs, as opposed to a single opportunity cost value applied to all MW.

Overview

A working template has been developed by Monitoring Analytics to assist a potential participant in any PJM Reliability Pricing Model Auction in developing and submitting the ACR for a Generation Capacity Resource as required in the Tariff. The Microsoft Excel Spreadsheet template conforms to the ACR formula found in section 6.8.a of Tariff Attachment DD and performs the ACR calculation when the input cells, found in blue text, are completed.

By design, the ACR does not include any costs that are prescribed in the PJM Cost Development Guidelines Manual ("CDG") for development of cost based energy market offers. These materials, labor and other costs identified in the CDG are incremental costs of operation that are incurred as a result of starting and generating MWh, are included in the daily energy market offers and therefore are not avoidable.

The template is designed to calculate the ACR in two steps. The first step is to build up the total fixed annual operating expenses of the generating unit. The second step is to determine the fixed annual operating expenses of the generating unit that are not avoidable. Subtracting the non-avoidable fixed annual operating expense from the total fixed annual operating expense results in the annual avoidable cost for the generating unit. The annual avoidable cost divided by the unit capacity determines the ACR in \$/MW-Year or \$/MW-Day.

The working ACR template posted by Monitoring Analytics for modification by the participant represents the Combined Cycle Two on One F Technology Default ACR. It may be then modified to represent any generating technology.

Once the template is completed its results can be uploaded by the participant to the RPM/ACR system on the Monitoring Analytics website. *The participants are advised not to modify any cell in the ACR Template containing a formula.* In uploading the ACR Template to the RPM/ACR Application only the input values in blue text will be uploaded. The RPM/ACR Application will re-calculate the ACR result. Instruction for the uploading of the results will be provided by PJM in various training sessions.

Template Overview

The template allows participants in a PJM Reliability Pricing Model Auction to develop the Avoidable Cost Rate (“ACR”) for a Generation Capacity Resource by inputting expense-related data and associated avoidable percentages into specific cells in the spreadsheet, such as plant staffing, hourly rates, salaries, benefits markups, overtime hours and rates, bonuses, fuel inventory, fuel pricing and other data.

Section 1 – Power Plant Technology

Select one of the eighteen generation technologies via the dropdown in cell B7. Monitoring Analytics will advise the participant of the appropriate generation technology to use for each unit ID via the RPM/ACR application. In cell C8 select, via the dropdown, whether you plan to submit the default ACR for this unit ID. If the default ACR is chosen only Sections 1, 2 and 3 must be completed for submission to the Monitoring Analytics RPM/ACR application. The technology specific default ACR will be posted by Monitoring Analytics for each capacity year. The appropriate default ACR should be input into cell C9. If the default ACR is not chosen then all sections of the template must be completed for submission to Monitoring Analytics via the RPM/ACR application.

Section 2A – General Unit Data

Complete the information coded in blue text. Drop down menus are provided to assist the participant. This section must be completed even if the participant is using the technology specific default ACR. Cells B17 through B20 are optional inputs for information purposes by the participant. They do not need to be filled in prior to uploading the template to the RPM/ACR application. Be advised that Monitoring Analytics will provide the Plant Commercial Operation Year (“COY”) to the participant via the RPM/ACR application. The COY should be input into the template such that the appropriate Capital Recovery Factor (“CRF”) can be determined by the participant in

Section 11A Project Investment. The Plant Heat Rate in BTU/kWh is input into cell C23. The Current Plant Value is input into cell C24. This value is consistent with the replacement or insured value of the plant. Unit ICAP and EFORd are input in cell C26 and C27, respectively.

Section 2B – Non Avoidable Cost Data

Complete the information coded in blue text. This section must be completed even if the participant is using the technology specific default ACR. This part of the template can be found in cells N12 to T25.

If a participant is entering a single opportunity cost, cells Q14, 15, and 16 can be used. If the participant wishes to enter multiple segmented opportunity costs, cells S16 through T25 are available to enter opportunity costs, and a descriptive explanation should still be entered in cell Q16.

Section 3 – Unit Technical Information

Unit technical information is required so that Monitoring Analytics can understand the design of the generating unit in order to assess the submitted ACR. Section 3 has been divided into three subsections. Only one subsection needs to be completed, depending on the unit specific technology. Subsection 3A covers combustion turbine based generation such as simple cycle (CT) and combined cycle units and diesel units. Subsection 3B covers conventional boiler steam units fired with gas, oil, coal or waste coal. Subsection 3C covers hydro and pumped storage units. Drop down input options have been provided where appropriate to assist the participating generation owner in completing Section 3. Other inputs require a specific input value. This section must be completed even if the participant is using the technology specific default ACR. Please note messages in cell regarding numeric or expression inputs. *Note that drop down inputs for Section 3 can be found in rows 6 to 21, columns W to AF and cannot be modified and are password locked.*

Section 4 – Avoidable Operations and Maintenance Labor (AOML) and Section 5 - Avoidable Administrative Expenses (AAE)

The Section 4 and 5 expenses include those relevant expenses not included in the CDG.

Those participants who have detailed staffing information readily available should input a 1 in cell D47 and follow the instructions immediately below. Those participants

who do not have detailed staffing information readily available but have the aggregated results skip to the [Simplified ACR Template Section 4 and 5 Instructions](#) on page 5.

Sections 4 and 5 cover any onsite and offsite *Operations and Maintenance Labor* expenses and *Administrative Salary Expenses* directly relating to the generating unit. Inputs to Sections 4 and 5 begin on row 94 and end on row 164 of the ACR Template. Additional inputs are required in rows 52 and 57.

The staffing schedule found in rows 100 through 131, when completed, provides the total fully loaded annual *Operations and Maintenance Labor* expense. The staffing schedule found in rows 133 through 164, when completed, provides the non-avoidable fully loaded annual *Operations and Maintenance Labor* expense.

In rows 95 through 99 base annual labor hours, percent overtime hours above base hours, administrative bonus as a percent of base salary and benefits as a percent of base salary or hourly rates are input. Two staffing schedules are provided:

Total Non-CDG Plant Staffing

In rows 104 through 129 onsite staffing levels are input in columns C through F and offsite staffing levels are input in column G. A job description or title may be found in column B. An input of a fraction of a person is allowed. For administrative staff annual salaries are input into column M rows 104 through 112. For hourly operations and maintenance labor hourly rates are input into column I rows 117 through 129.

Note that all administrative personnel are assumed to work only the day shift. Accordingly, inputs in rows 104 through 112, columns C through F will not be accepted by the RPM/ACR Application. Staffing levels must be input into columns B and G to be accepted by the RPM/ACR Application upload.

Total Non-Avoidable Non-CDG Plant Staffing

The staffing schedule found in rows 133 through 164 is identical to that found in rows 100 through 131. In this section the participating generation owner will determine the non-avoidable plant staffing levels.

In rows 137 through 162 onsite staffing levels are input in columns C through F and offsite staffing levels are input in column G. A job description or title may be found in column B. An input of a fraction of a person is allowed. Administrative staff annual salaries and hourly operations and maintenance labor hourly rates flow into this section from those input in rows 104 through 129.

Note that all administrative personnel are assumed to work only the day shift. Accordingly, inputs in rows 137 through 145, columns C through F will not be accepted by the RPM/ACR Application. Staffing levels must be input into columns B and G to be accepted by the RPM/ACR Application upload.

The results of completing both staffing schedules appear on rows 49 and 51 columns C, D and E in the form of the total annual expense, the avoidable annual expense and the percent avoidable.

Simplified ACR Template Section 4 and 5 Instructions

Those participants who do not have detailed staffing information readily available but have the aggregated results should input a 2 in cell D47 and complete the ACR template as follows.

Total aggregated annual *Operation and Maintenance Labor* expense is input in cell F49. The participating generation owner's estimate of the percent of the *Operation and Maintenance Labor* expenses which are avoidable is input into cell G49.

Total aggregated annual *Administrative Salary* expense is input in cell F51. The participating generation owner's estimate of the percent of the *Administrative Salary* expenses which are avoidable is input into cell G51.

Additional inputs for AAE are required in rows 52 and 57 as follows:

Total annual *Employee Expenses* are input in cell C52. The participant's estimate of the percent of the *Employee Expenses* which are avoidable is input into cell D52.

Annual *Environmental Fees* are input in cell C53. The participant's estimate of the percent of the *Environmental Fees* which are avoidable is input into cell D53.

Annual *Safety and Operator Training* expense is input in cell C54. The participant's estimate of the percent of the *Safety and Operator Training* expense which are avoidable is input into cell D54.

Annual *Office Supplies* expense is input in cell C55. The participant's estimate of the percent of the *Office Supplies* expense which are avoidable is input into cell D55.

Annual *Communications* expense is input in cell C56. The participant's estimate of the percent of the *Communications* expense which are avoidable is input into cell D56.

Annual *Plant Tests Inspections and Analysis* expense is input in cell C57. The participant's estimate of the avoidable percent of the *Plant Tests Inspections and Analysis* expense is input into cell D57.

Section 6 – Avoidable Maintenance Expenses (AME)

The maintenance expenses input into Section 6 cover those maintenance expenses not included in CDG.

Annual *Maintenance Parts* expense is input in cell C60. The participant's estimate of the avoidable percent of the *Maintenance Parts* expense is input into cell D60.

Annual *Maintenance Contract Services* expense is input in cell C61. The participant's estimate of the avoidable percent of the *Maintenance Parts* expense is input into cell D61.

Annual *Chemical and Materials Consumed* expense is input in cell C62. The participant's estimate of the avoidable percent of the *Chemical and Materials Consumed* expense is input into cell D62. This category would include, as an example, water and chemicals for chemical cleaning of equipment, machinist cutting oils, tools etc.

Annual *Rented Equipment* expense is input in cell C63. The participant's estimate of the avoidable percent of the *Rented Equipment* expense is input into cell D63. This category would include, as an example, rented air compressors, lights, generators, welders, cranes, tools, etc.

Section 7 – Avoidable Variable Expenses (AVE)

The variable expenses in Section 7 include those relevant variable expenses not included in CDG.

Annual *Water Treatment Chemical* expense is input in cell C66. The participant's estimate of the percent of the *Water Treatment Chemical* expense is input into cell D66. This category would include, as an example, boiler water chemicals, cooling water chemicals and waste water treatment chemicals.

Annual *Lubricants* expense is input in cell C67. The participant's estimate of the percent of the *Lubricants* expense is input into cell D67. This category would include, as an example, turbine, generator and rotating equipment lubricating oils.

Annual *Water (Not For Power Generation)* expense is input in cell C68. The participant's estimate of the avoidable percent of the *Water* expense is input into cell D68. This category would include as an example potable water and service water.

Annual *Gas (Not For Power Generation)* expense is input in cell C69. The participant's estimate of the avoidable percent of *Gas* expense is input into cell D69. This category would include as an example natural gas for heating of shops, warehouses and offices.

Annual *Electric (Not For Power Generation)* expense is input in cell C70. The participant's estimate of the avoidable percent of *Electric* expense is input into cell D70. This category would include as an example electric for heating and/or lighting of the power plant boiler area, turbine hall, shops, warehouses, parking lot and offices.

Annual *Waste Water Treatment* expense is input in cell C71. The participant's estimate of the avoidable percent of *Waste Water Treatment* expense is input into cell D71.

Section 8 – Taxes, Fees and Insurance (ATFI)

The variable expenses in Section 8 include those relevant variable expenses not included in CDG.

Annual *Insurance Premiums* expense is input in cell C74. The participant's estimate of the avoidable percent of the *Insurance Premiums* expense is input into cell D74. This category would include business interruption, property boiler and machinery and general liability premiums. Reductions in premiums would be anticipated as the plant would not be operating yet secured against vandalism and inspected and maintained by on site staff. Input from the owner's insurance carrier, broker or consultant is suggested.

Annual *Permits and Licensing Fees* are input in cell C75. The participant's estimate of the avoidable percent of the *Permits and Licensing Fees* expense is input into cell D75. This category would include fees for river, water, sewer and air permits and any licensing fees associated with certain plant equipment or processing systems.

Annual *Site Security and Utilities* expenses are input in cell C76. The participant's estimate of the avoidable percent of the *Site Security and Utilities* expense is input into cell D76. This category would include fees for river, water, sewer and air permits and any licensing fees associated with certain plant equipment or processing systems.

Annual *Property Tax Payment* expenses are input in cell C77. The participant's estimate of the avoidable percent of the *Property Tax Payment* expenses is input into cell D77. This category would include city, township or county property taxes.

Section 9 – Avoidable Carrying Costs (ACC)

The carrying costs input into Section 9 cover the costs of keeping spare parts and fuel inventory on site.

The value of the total current *Spare Parts Inventory* is input in cell C80. The participant's estimate of the avoidable percent of the *Spare Parts Inventory* is input into cell D80.

The value of the total current *Fuel Inventory* is calculated by completing the Sections 9A Liquid Fuel Inventory and Sections 9B Coal Inventory found in rows 73 to 84 column J. For liquid fuel inventory the participant inputs the days of inventory of the fuel in cell J74, the heating value of the fuel in J75 and the delivered price of the fuel in J78. A dropdown in cell J75 provides heating values for liquid fuels. The value of the inventory is calculated and flows into cell C81. Please place a zero in cell J74 if no liquid fuel is stored on site. The participant's estimate of the avoidable percent of the *Fuel Inventory* is input into cell D81.

For coal inventory the participant inputs the days of inventory of the fuel in cell J80, the heating value of the coal in J81 and the delivered price of the coal in J84. The value of the inventory is calculated and flows into cell C81. Please place a zero in cell J80 if no coal is stored on site. The participant's estimate of the avoidable percent of the *Fuel Inventory* is input into cell D81.

The value of the total current *Other Inventory* is input in cell C82. The participant's estimate of the avoidable percent of the *Spare Parts Inventory* is input into cell D82.

The annual carrying cost interest rate is input into cell C84 and the total *Avoidable Carrying Cost* is calculated and appears in cell E85.

Section 10 – Avoidable Corporate Level Expense (ACLE)

Annual *Legal Services* expense is input in cell C87. The participant's estimate of the avoidable percent of the *Legal Services* expenses is input into cell D87.

Annual *Environmental Reporting* expense is input in cell C88. The participant's estimate of the avoidable percent of the *Environmental Reporting* expenses is input into cell D88.

Annual *Procurement Expenses* are input in cell C89. The participant's estimate of the avoidable percent of the *Procurement Expenses* is input into cell D89.

Section 11 – Project Investment Recovery Rate (APIR)

The *Project Investment (PI)* is determined by completing the line item capital cost found in Section 11A rows 49 and 59 column J. The appropriate *Remaining Life of the Plant* is input into cell J62 and the corresponding CRF flows into the *Project Investment Recovery Rate* calculation. The *Project Investment Recovery Rate* appears in cell C92. The participant's estimate of the avoidable percent of the *Project Investment Recovery Rate* is input into cell D80. The *Avoidable Project Investment Recovery Rate* appears in cell E92.

Section 12 – Avoidable Cost Summary

Row 36 through 46 provides a summary of results of completing Sections 4 through 11. It provides the results of each section in total dollars, and \$/MW-Year and \$/MW-Day.

Section 13 – Avoidable Cost Rate Calculation

Rows 32 through 34 provide a summary of the *Avoidable Cost Rate Calculation* as found in Section 6.8.a of Attachment DD.