

Data Development and Validation Manual

<<Author>>

<<Month DD, YYYY>>

# Thermal Plant Fuel Costs

The ADS PCM includes fuel costs for coal, natural gas and other thermal plants. “Other” thermal plant fuels include uranium, biofuels, black liquor, refuse, solid waste and geothermal steam. WECC’s Production Cost Data Subcommittee (PCDS) and WECC staff collaborate to develop thermal plant fuel prices for the ADS PCM.

The ADS also uses a specific inflator/deflator to adjust data to the correct years dollars to match the base year of the ADS.

### Inflation Rate – Inflator/Deflator

Cost data such as fuel prices, variable O&M rates, and startup costs are often provided in different year’s dollars and require conversion to a selected base year dollars. The base year is determined by the PCDS and is usually the build year for the case. For example, the 2030 ADS PCM case is being built in year 2020, thus the base year is 2020, so the case will be built using year 2020 dollars. These conversions are based on the Moody’s GDP Inflator/Deflator series, licensed to the California Energy Commission (CEC).

Spreadsheet/Data found here on [OneNote](onenote:https://internal.wecc.org/teams/PDWG/Shared%20Documents/2032%20ADS%20PCM%20Documentation/Costs%20and%20Economics.one#Thermal%20Fuel%20Prices&section-id={3F75144D-F05B-446B-9809-090CF4F0D846}&page-id={5ED6B38F-5E87-4E6E-A3E5-BA5ADA85B25E}&object-id={B43BF569-2B94-0E85-00CB-2B33E2C661C4}&12)

**Approval Item:**

3/29/2022

It is moved that the PCDS approves the use of CEC 2021 IEPR Implicit GDP Deflator by Moody Analytics for data development in the 2032 ADS PCM database.

Qualification: CEC has a consent from Moody Analytics for the use of its deflator for ADS.

### Coal Price Development

**Data Sources:**

* The Coal prices used the ADS are based on the CEC’s Integrated Energy Policy Report (IEPR) for the base year of the ADS.
* The ADS also reports historic coal prices reported by the U.S. Energy Information Agency (EIA) in its EIA 923 report for the ADS base year.

In some cases, coal plants are under contract for fuel at specified prices for future years. In those cases, future coal prices reflect the contract price, rather than the forecasted price. Derived prices may be split into a fixed and variable/dispatch portion, depending on the contract terms.

**Data Development and Validation Process:**

WECC uses the following process to validate coal prices:

1. WECC requests the CEC’s IEPR for the ADS base year.
2. If coal prices reported in the IEPR differ from the ADS base year, apply the GDP Deflator Series provided by the CEC to convert the prices from the year reflected to the reference/base year used for the case. Coal prices are reported and modeled as a single price for each year and do not vary monthly.
   1. The derived prices may be split into a fixed and variable/dispatch portion.
   2. Some coal prices are reflected by a contract price with the coal mine, rather than the forecasted price.
3. WECC documents the coal prices for the base year and each of the 10 years from the base year through the ADS case year.
4. The PCDS reviews the prices reported by the CEC and EIA to determine which ones to use. Decision criteria includes a careful comparison between the EIA and CEC data. The PCDS then approves coal prices to use in the ADS PCM
5. WECC staff implements the coal prices by adding them to GridView.

Spreadsheet/Data found here on [OneNote](onenote:https://internal.wecc.org/teams/PDWG/Shared%20Documents/2032%20ADS%20PCM%20Documentation/Costs%20and%20Economics.one#Thermal%20Fuel%20Prices&section-id={3F75144D-F05B-446B-9809-090CF4F0D846}&page-id={5ED6B38F-5E87-4E6E-A3E5-BA5ADA85B25E}&object-id={1F7303BD-4481-0112-273C-D6D3F84CB411}&41)

**Review/Modification Schedule:**

WECC reviews and modifies thermal plant fuel costs biennially during each ADS development cycle. As WECC creates the ADS in even-numbered years, it also modifies thermal plant fuel costs in even-numbered years.

**Approval Item:**

3/29/2022

It is moved that the PCDS approves reuse of the 2030 ADS Coal prices in the 2032 ADS PCM, with no escalation except for adjustment to 2022 dollars, consistent with methodology covered on slide 20. This is consistent with the fact that forward information is limited since the industry faces uncertainty due to policy considerations and inflexible price conditions.

### Natural Gas Price Development

**Data Sources:**

WECC requests the following data:

* CEC monthly burner tip hub prices, requested from the CEC. This data includes transportation cost (delivery cost from the pipeline to the generation plant) separate from the burner tip prices. to the annual North American Gas (NAMGas) prices and converts them to a monthly price.
* CEC Burner Tip prices are converted to monthly prices using NWPCC methodology.
* Northwest Power and Conservation Council (NWPCC) monthly price forecasts and monthly shapes. The NWPCC derives these forecasts from historic price data and seasonal supply expectations. They also provide hub prices, although the hubs are not the same as those from the CEC. Additionally, WECC requests monthly shapes for natural gas prices.
* WECC adjusts the base year natural gas prices relative to the base year using Moody’s inflator/deflator series described above under coal prices. The ADS PCM uses monthly natural gas prices based on prices provided by the CEC and NWPCC.

**Data Development and Validation Process:**

WECC uses the following process to develop and validate natural gas price data:

1. Receive natural gas price data from the CEC and NWPCC.
   1. Natural Gas prices are modeled on a monthly basis as a monthly price
2. Map the CEC price hubs to the CEC burner-tip points
3. Map the PCM fuel names and the NWPCC hubs to the names used for CEC burner-tip points
4. Apply the transportation prices to the burner-tip points.
5. Apply a GDP inflator/deflator to adjust the prices to the correct base years dollars.
6. (Is there a step to compare data provided by CEC and NWPCC? If so, we need to describe how the PCDS would resolve any differences)
7. Build monthly prices from the annual CEC burner tip prices and the NWPCC monthly shapes
8. Build a table of natural gas prices for the base year through the ADS year that is importable to GridView.
9. PCDS approves the natural gas prices and methodologies.
10. WECC staff implements natural gas prices by importing them into GridView.

Spreadsheet/Data found here on [OneNote](onenote:https://internal.wecc.org/teams/PDWG/Shared%20Documents/2032%20ADS%20PCM%20Documentation/Costs%20and%20Economics.one#Thermal%20Fuel%20Prices&section-id={3F75144D-F05B-446B-9809-090CF4F0D846}&page-id={5ED6B38F-5E87-4E6E-A3E5-BA5ADA85B25E}&object-id={6C39CCA3-CF3A-0E68-08EC-77FF9B5A0B30}&19)

**Review and Modification Schedule:**

WECC reviews and modifies thermal plant fuel costs biennially during each ADS development cycle. As WECC creates the ADS in even-numbered years, it also modifies thermal plant fuel costs in even-numbered years.

**Approval Item:**

3/29/2022

It is moved that PCDS approves the use of CEC Natural Gas prices in the 2032 ADS as follows:

Natural Gas Prices – developed using the CEC monthly burner tip prices, validated with EIA and Northwest Power Conservation Council’s Prices.

### Other Fuels Prices

**Data Sources:**

WECC obtains prices for other fuels including uranium, biofuels, black liquor, refuse, solid waste and geothermal steam in two ways:

* WECC staff reviews the EIA 923(?) report to determine whether fuel costs for other generation types are available from this source.
* If data are not available from the EIA, WECC staff requests missing data from the NWPCC.
* Other fuel cost data are modeled as a yearly price that does not vary monthly as do natural gas prices.

**Data Development and Validation Process:**

WECC uses the following process to develop and validate other generation sources’ fuel prices:

1. Compile other generation sources’ fuel prices as described above.
2. Review and approve fuel prices through PCDS.
3. WECC staff implements approved fuel prices by adding them into GridView.

**Review/Modification Schedule:**

WECC reviews and modifies other generation sources’ fuel costs biennially during each ADS development cycle. As WECC creates the ADS in even-numbered years, it also modifies thermal plant fuel costs in even-numbered years.

Spreadsheet/Data found here on [OneNote](onenote:https://internal.wecc.org/teams/PDWG/Shared%20Documents/2032%20ADS%20PCM%20Documentation/Costs%20and%20Economics.one#Thermal%20Fuel%20Prices&section-id={3F75144D-F05B-446B-9809-090CF4F0D846}&page-id={5ED6B38F-5E87-4E6E-A3E5-BA5ADA85B25E}&object-id={A9397519-5F88-075C-3BCB-BCB3092D1896}&20)

**Approval Item:**

3/29/2022

It is moved that the PCDS approves the use of “other” fuel prices for the 2032 ADS PCM database as follows:

* Annual Energy Outlook 2022 forecast, supplemented with missing data with pricing from the NPCC as available.
* For missing price forecasts, escalate values from the 2030 ADS, using the CEC Deflator