Gorilla assessment

Use pandas to calculate a Transportation Distribution Charge for 3 Gas meters in the United Kingdom. Save your code in a Jupyer Notebook and upload to a public repo on Github (or any other platform of your choice). All calculations must be done using vectorized operations. **Do not use loops**

*A Transportation Distribution Charge is a charge levied by the Distribution companies for the use of their lower pressure pipelines. The charge covers the cost of physically transporting the gas through the pipeline.*

*The cost is variable in time and is determined by the Exit Zone (a regional code) and the (estimated) rolling consumption quantity of the meter.*

The cost is calculated by finding the correct rates for the meter and calculating the cost in pence per day by multiplying the forecast for the day by the correct rate for that day. All data needed for the calculation can be found in the Excel file.

Calculate the total cost per meter by summing the costs per day for the full period of the forecast (2020-10-01 to 2022-09-30) and converting to £ (1p = 0.01£)

Calculate the total consumption by summing the forecasted consumption for the full period.

Your result should be a dataframe of the form, round all numerical values up to 2 decimals:

|  |  |  |
| --- | --- | --- |
| Meter ID | Total Estimated Consumption (kWh) | Total Cost (£) |
| 10626610 |  |  |
| 10588707 |  |  |
| 1000000603 |  |  |

*Example:*

*For meter* ***10588707****:*

*Exit zone:* ***EM2****, AQ:* **75123kwh**

Match the meter to a rate in the Rate Table by matching the correct exit zone and date and determining the correct band.

Determine the band by assuring the AQ is between the Min Annual Quantity (included) and Max Annual Quantity (excluded) columns in the Rate Table.

The following rates are found:

**Rates determined for meter *10588707 :***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Exit Zone** | **Min Annual Quantity (kWh)** | **Max Annual Quantity (kWh)** | **Rate (p/kWh)** |
| 2020-04-01 | EM2 | 73200 | 732000 | 0.0228 |
| 2020-10-01 | EM2 | 73200 | 732000 | 0.0228 |
| 2021-04-01 | EM2 | 73200 | 732000 | 0.02336014 |
| 2021-10-01 | EM2 | 73200 | 732000 | 0.02336014 |
| 2022-04-01 | EM2 | 73200 | 732000 | 0.02435785 |
| 2022-10-01 | EM2 | 73200 | 732000 | 0.02435785 |
| 2023-04-01 | EM2 | 73200 | 732000 | 0.02514696 |
| 2023-10-01 | EM2 | 73200 | 732000 | 0.02514696 |
| 2024-04-01 | EM2 | 73200 | 732000 | 0.02596247 |

*The rate from 2020-04-01 to 2020-09-30 is 0.0228 p/kWh*

*The rate from 2021-04-01 to 2021-09-30 is 0.02336014 p/kWh*

*etc*

Calculate the cost per day for each meter by multiplying the forecast for that day (kWh) with the rate for that day (p/kWh) to obtain a cost in p.

**Costs calculated for meter *10588707 :***

On 2020-10-01:

Cost: *0.0228 \** 126.367711

On 2020-10-02 :

Cost : 0.0228 \* 118.322449

etc