

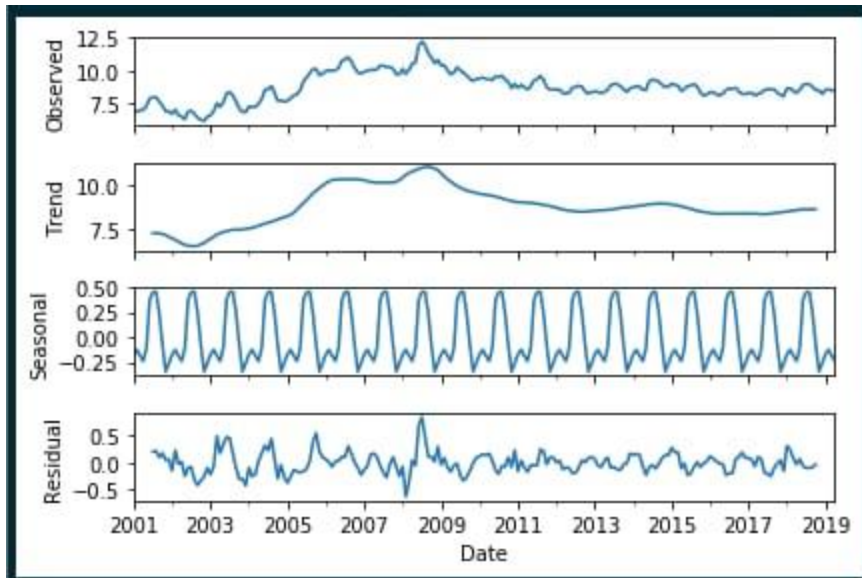
## ELECTRICITY PRICES PREDICTION

NAME:Ponmathan V

REG NO:912721104024

let's look at whether or not the monthly electricity data displays seasonality and a trend. To do this, we use the `seasonal_decompose()` function in the `statsmodels.tsa.seasonal` package. This function breaks down a time series into its core components: trend, seasonality, and random noise. The code and its outputs are displayed below:

```
def decompose_time_series(series):  
    """  
    Decompose a time series and plot it in the console  
    Arguments:  
        series: series. Time series that we want to decompose  
    Outputs:  
        Decomposition plot in the console  
    """  
    result = seasonal_decompose(series, model='additive')  
    result.plot()  
    pyplot.show()  
#Execute in the main block  
#Convert the Date column into a date object  
electricity_df['Date']=pd.to_datetime(electricity_df['Date'])  
#Set Date as a Pandas DatetimeIndex  
electricity_df.index=pd.DatetimeIndex(electricity_df['Date'])  
#Decompose the time series into parts  
decompose_time_series(electricity_df['Electricity_Price'])
```



Time series decomposition:monthly electricity prices in TX

So what does the plot above mean? If we take a closer look at the seasonal component of the decomposition, we can validate a trend that logically makes sense: during the summer months in Texas, electricity prices skyrocket. For anyone who has been to Texas in the middle of summer, it's sweltering hot and practically unlivable without air conditioning (I know, I live in Houston). So, more air conditioning leads to more electricity usage, which leads to higher electricity prices.

Additionally, there is a second, smaller spike in electricity prices around the beginning of each year. This is likely due to the weather being cool enough that Texans resort to heating their homes, offices, etc. As most of Texas's weather is fairly mild in the winter, this spike is significantly less pronounced than the spike in electricity prices during the summer.