MEASURING ENGERGY CONSUMPTION:

CODE:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

# Function to load and process data
def load_and_process_data(file_name):
    # Read the CSV file into a pandas DataFrame
    df = pd.read_csv(file_name)

    # Check if 'AEP_MW' column exists
    if 'AEP_MW' in df.columns:
        # Clean and preprocess the data
        df = df.drop_duplicates()
        df = df.dropna()

        # Check if the file name is "AEP_hourly.csv"
        if file_name == "AEP_hourly.csv":
            df['AEP_MW'] = df['AEP_MW'].astype(float)

        return df
    else:
        print("The 'AEP_MW' column does not exist in the DataFrame.")
        return None
```

```
# File name
file_name = "D:\AEP_hourly.csv"

# Load and process the data
df = load_and_process_data(file_name)

if df is not None:
    # Calculate the energy consumption
    total_energy_consumption = df['AEP_MW'].sum()
    average_energy_consumption = df['AEP_MW'].mean()
    peak_energy_consumption = df['AEP_MW'].max()

    # Visualize the data
    plt.bar(df['Datetime'], df['AEP_MW'])
    plt.xlabel('Date and Time')
    plt.ylabel('Energy Consumption (AEP_MW)')
    plt.title('Energy Consumption Monitoring')
    plt.xticks(rotation=45)
plt.show()
```