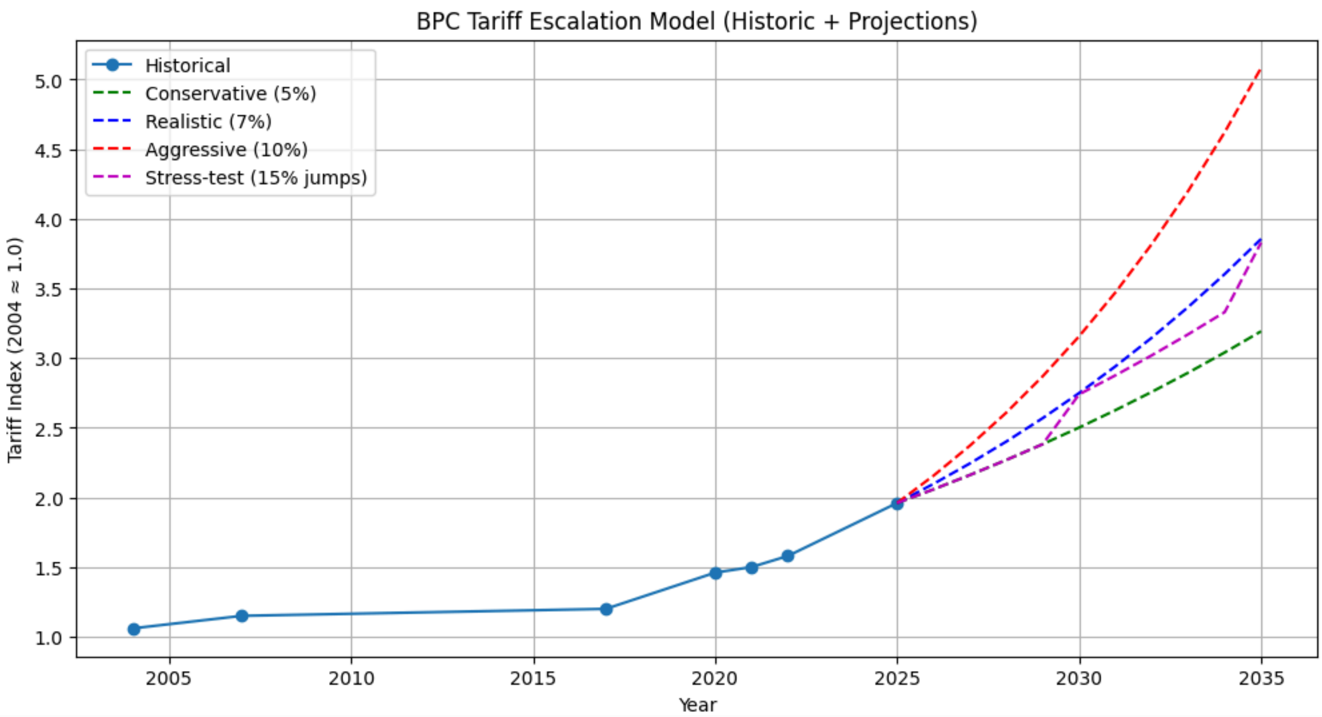
```
import matplotlib.pyplot as plt
import numpy as np


 #data
years_hist = np.array([2004, 2007, 2017, 2020, 2021, 2022, 2025])
tariffs_hist = np.array([1.06, 1.15, 1.20, 1.46, 1.50, 1.58, 1.96])



#2025 to 2035
years_proj = np.arange(2025, 2036)



# Conservative whre we say 5% annual increase
tariffs_cons = tariffs_hist[-1] * (1.05 ** (years_proj - 2025))


# Realistic where we say 7% annual increase
tariffs_real = tariffs_hist[-1] * (1.07 ** (years_proj - 2025))


# Aggressive where we say 10% annual increase
tariffs_aggr = tariffs_hist[-1] * (1.10 ** (years_proj - 2025))


# Stress-test 15% one-off hikes every 5 years
tariffs_stress = [tariffs_hist[-1]]
for i in range(1, len(years_proj)):
    prev = tariffs_stress[-1]
    if (i % 5 == 0):
        tariffs_stress.append(prev * 1.15)
    else:
        tariffs_stress.append(prev * 1.05)
tariffs_stress = np.array(tariffs_stress)


plt.figure(figsize=(12,6))
plt.plot(years_hist, tariffs_hist, 'o-', label='Historical')
plt.plot(years_proj, tariffs_cons, 'g--', label='Conservative (5%)')
plt.plot(years_proj, tariffs_real, 'b--', label='Realistic (7%)')
plt.plot(years_proj, tariffs_aggr, 'r--', label='Aggressive (10%)')
plt.plot(years_proj, tariffs_stress, 'm--', label='Stress-test (15% jumps)')

plt.title('BPC Tariff Escalation Model (Historic + Projections)')
plt.xlabel('Year')
plt.ylabel('Tariff Index (2004 ≈ 1.0)')
plt.grid(True)
plt.legend()
plt.show()
```



Yellow line: Historical progression (2004 ≈ 1.0 baseline index). Conservative (5%) growth — moderate, steady annual escalation. Realistic (7%) — factoring BPC's cost-recovery push and reduced subsidies. Aggressive (10%) — for worst case of strong persistent annual hikes. Stress test (15% jumps) every ~5 years, mixed with 5% in between — captures big tariff shocks like we saw in 2020 & 2025.

By 2035 (10 years from 2025):

Conservative: tariffs roughly 3.2× today's rate.

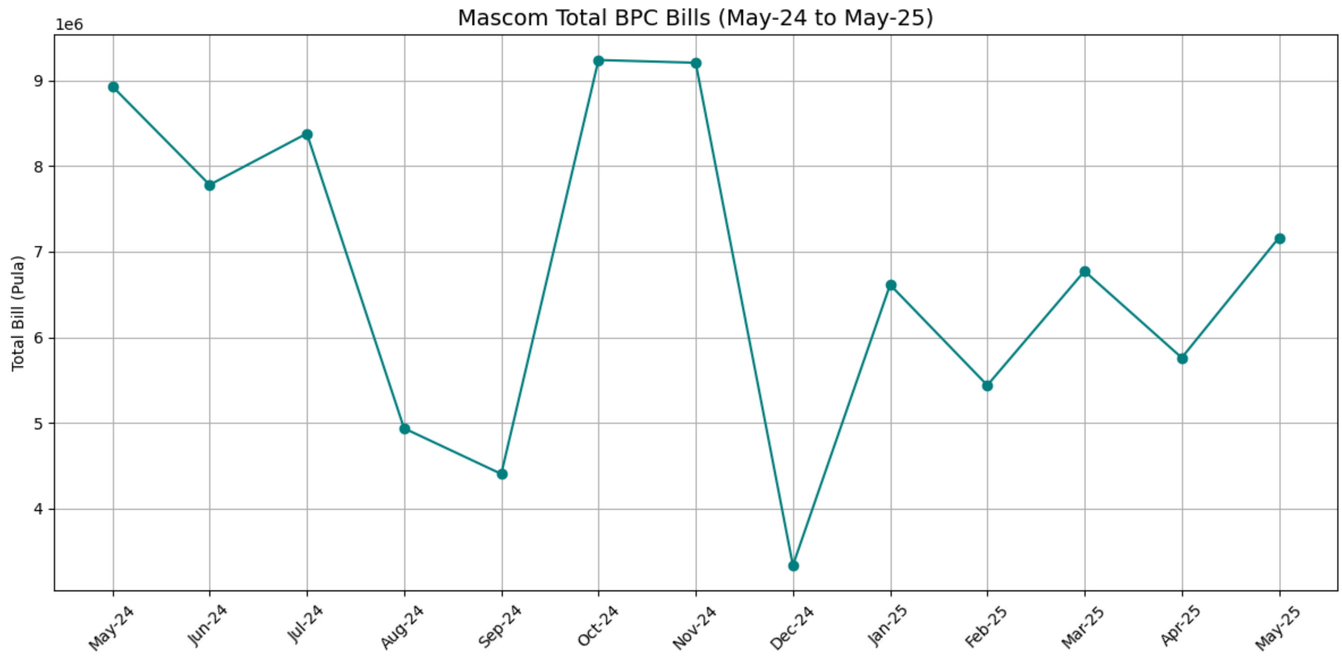
Realistic: about 3.9× today's rate.

Aggressive: over 5× today's rate — a massive OPEX threat.

Start coding or generate with AI.

BILLS FOR THE PAST YEAR

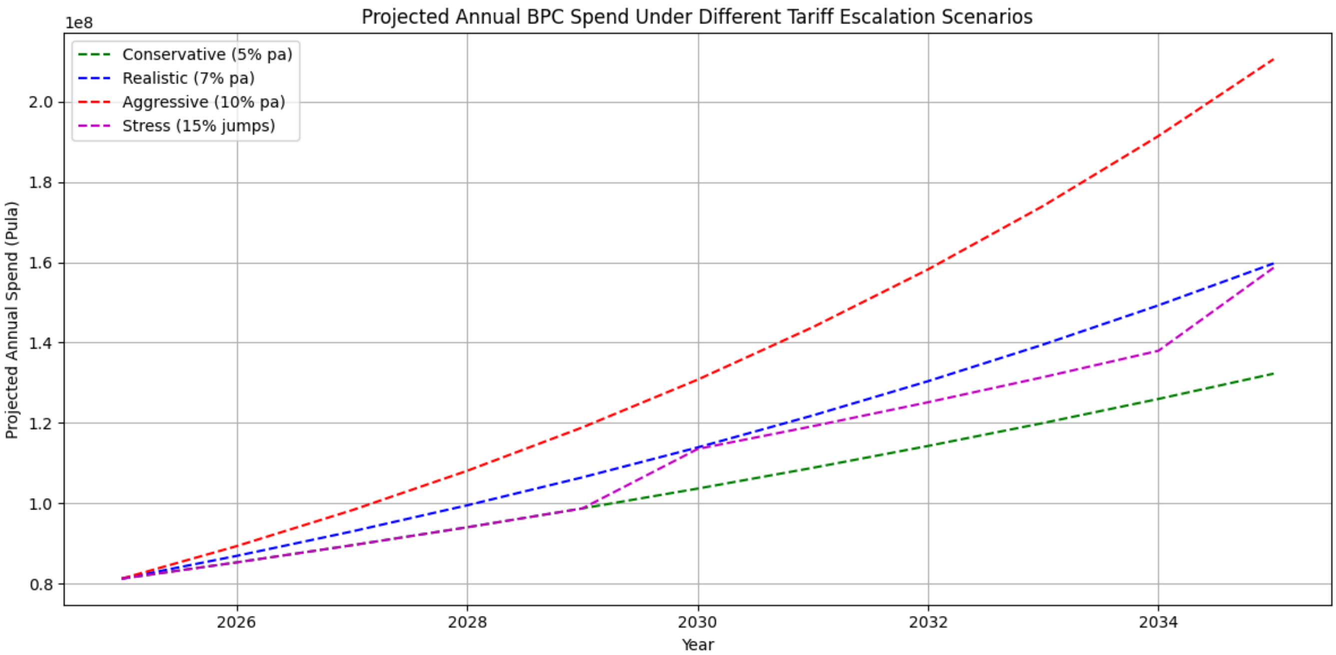
```
import matplotlib.pyplot as plt
import pandas as pd


months = [
    "May-24", "Jun-24", "Jul-24", "Aug-24", "Sep-24", "Oct-24",
    "Nov-24", "Dec-24", "Jan-25", "Feb-25", "Mar-25", "Apr-25", "May-25"
]

bills = [
    8929393.5, 7779960.91, 8379658.62, 4936779.87, 4404058.2,
    9237795.952, 9205662.97, 3336259.2, 6613067.58, 5439012.88,
    6772479.07, 5760712.84, 7163599.75
]


df = pd.DataFrame({'Month': months, 'Bill (P)': bills})


plt.figure(figsize=(12,6))
plt.plot(df['Month'], df['Bill (P)'], marker='o', linestyle='-', color='teal')
plt.title('Mascom Total BPC Bills (May-24 to May-25)', fontsize=14)
plt.ylabel('Total Bill (Pula)')
plt.xticks(rotation=45)
plt.grid(True)
plt.tight_layout()
plt.show()
```



In a year = P88,958,441 Average monthly = P7,413,200

You can see the clear fluctuations, with bills ranging roughly between P3.3 million and P9.2 million, showing seasonal or operational variations.

```
import numpy as np


avg_annual_spend = np.sum(bills) / len(bills) * 12


# Projection parameters
years = np.arange(2025, 2036)

# Scenarios
spend_5 = avg_annual_spend * (1.05 ** (years - 2025))
spend_7 = avg_annual_spend * (1.07 ** (years - 2025))
spend_10 = avg_annual_spend * (1.10 ** (years - 2025))

# Stress: +15% every 5 years, +5% otherwise
spend_stress = [avg_annual_spend]
for i in range(1, len(years)):
    prev = spend_stress[-1]
    if i % 5 == 0:
        spend_stress.append(prev * 1.15)
    else:
        spend_stress.append(prev * 1.05)
spend_stress = np.array(spend_stress)

# Plot projections
plt.figure(figsize=(12,6))
plt.plot(years, spend_5, 'g--', label='Conservative (5% pa)')
plt.plot(years, spend_7, 'b--', label='Realistic (7% pa)')
plt.plot(years, spend_10, 'r--', label='Aggressive (10% pa)')
plt.plot(years, spend_stress, 'm--', label='Stress (15% jumps)')

plt.title('Projected Annual BPC Spend Under Different Tariff Escalation Scenarios')
plt.ylabel('Projected Annual Spend (Pula)')
plt.xlabel('Year')
plt.grid(True)
plt.legend()
plt.tight_layout()
plt.show()
```



10-year projection of Mascom's annual BPC spend under different escalation scenarios, starting from the actual ~P89 million/year baseline.

Scenario	Approx by 2035	% Increase vs Today
✅ Conservative (5%)	~P132 million	+48%

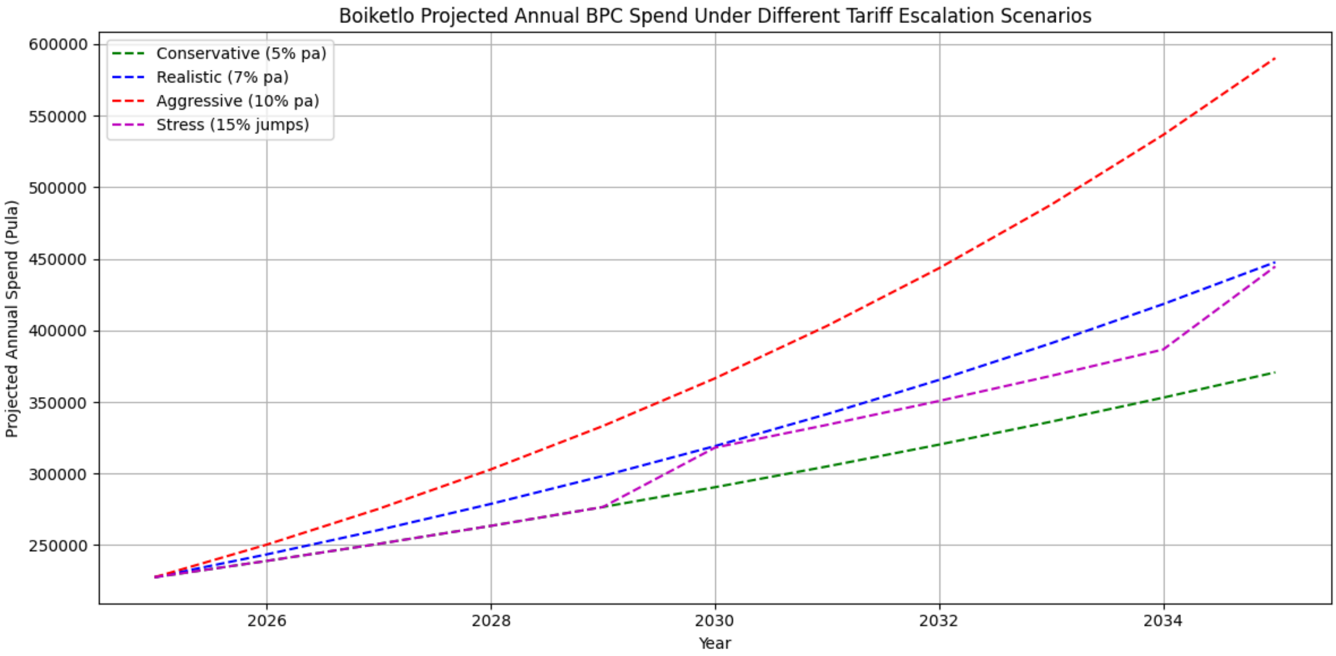
Scenario	Approx by 2035	% Increase vs Today
🔵 Realistic (7%)	~P160 million	+80%
🔴 Aggressive (10%)	~P212 million	+138%
🟣 Stress (15% jumps)	~P160 million	+80%

This means by 2035, even under realistic 7% annual increases, your BPC spend could grow by ~P71 million/year, and under aggressive scenarios by over P120 million/year extra, dramatically impacting OPEX.

Boiketlo Case

Averaege monthly bill= P19,500 Annual baseline bill= P234,000

```
# Boiketlo
boiketlo_avg_monthly = np.mean([
    13740.07, 19623.77, 22471.54, 14486.87, 15414.01,
    20632.82, 22241.96, 10924.54, 22270.5, 24837.47,
    20746.6, 19636.8, 19508.09
])

boiketlo_annual = boiketlo_avg_monthly * 12


years = np.arange(2025, 2036)

boik_5 = boiketlo_annual * (1.05 ** (years - 2025))
boik_7 = boiketlo_annual * (1.07 ** (years - 2025))
boik_10 = boiketlo_annual * (1.10 ** (years - 2025))

boik_stress = [boiketlo_annual]
for i in range(1, len(years)):
    prev = boik_stress[-1]
    if i % 5 == 0:
        boik_stress.append(prev * 1.15)
    else:
        boik_stress.append(prev * 1.05)
boik_stress = np.array(boik_stress)


plt.figure(figsize=(12,6))
plt.plot(years, boik_5, 'g--', label='Conservative (5% pa)')
plt.plot(years, boik_7, 'b--', label='Realistic (7% pa)')
plt.plot(years, boik_10, 'r--', label='Aggressive (10% pa)')
plt.plot(years, boik_stress, 'm--', label='Stress (15% jumps)')

plt.title('Boiketlo Projected Annual BPC Spend Under Different Tariff Escalation Scenarios')
plt.ylabel('Projected Annual Spend (Pula)')
plt.xlabel('Year')
plt.grid(True)
plt.legend()
plt.tight_layout()
plt.show()
```



Scenario	2026	2030	2035
5% pa	P245 000	P298 000	P380 000