ANEXO III

CUADROS DE SOPORTE

ANEXO 3

CUADROS SOPORTE Y DETALLE DE CÁLCULOS

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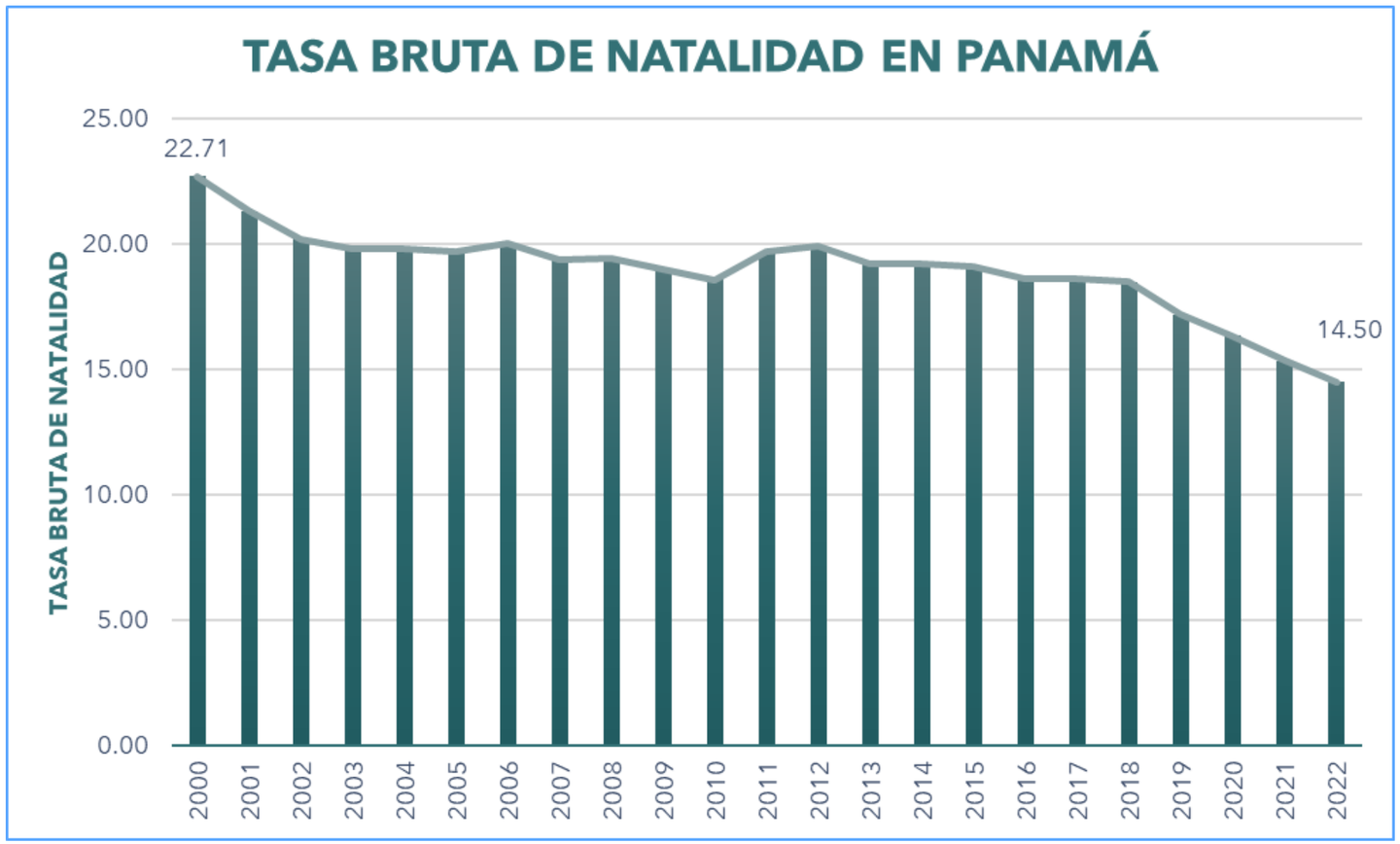
ANEXO 3

CUADRO NO.1: TASA DE NATALIDAD POR MIL HABITANTES.

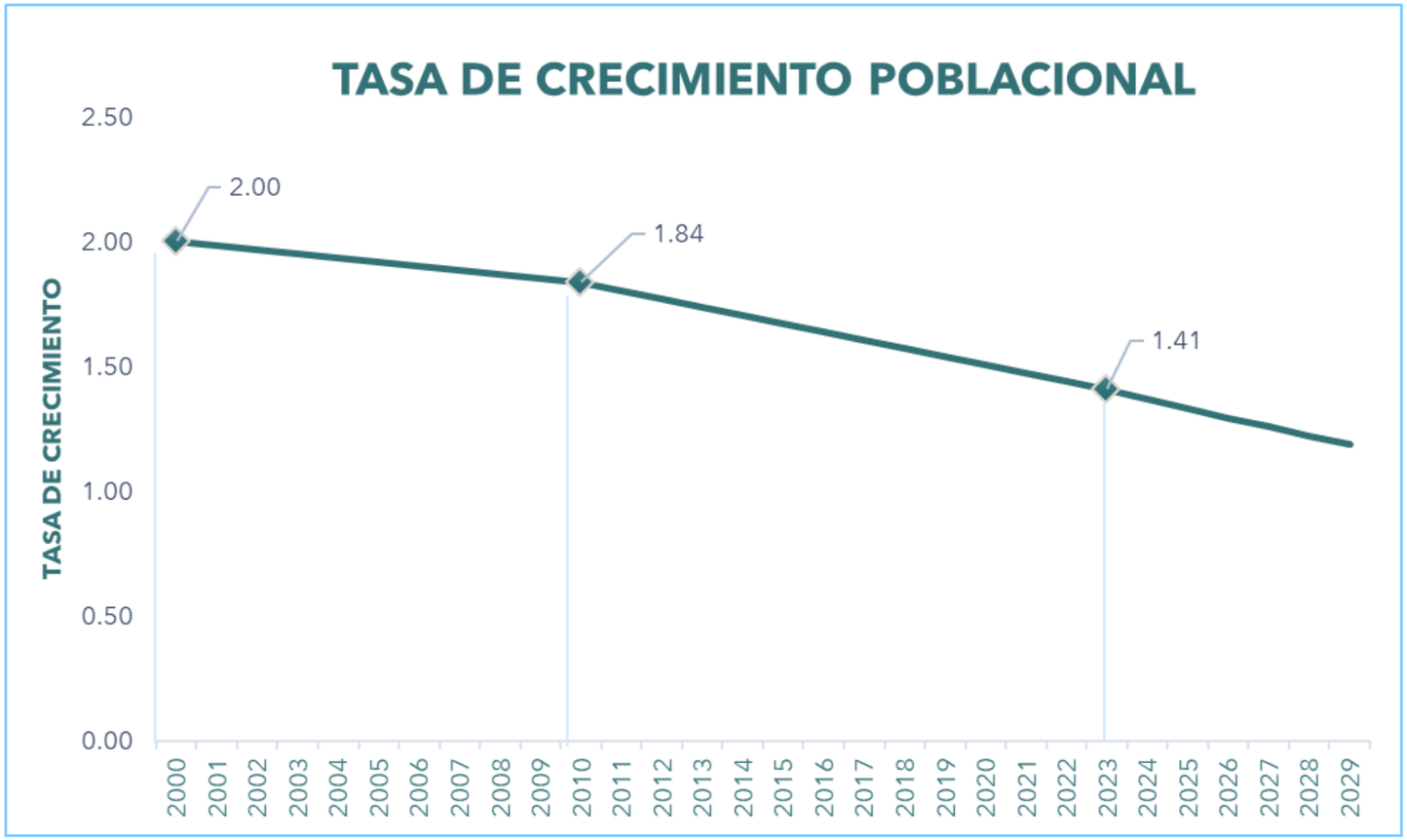
AÑO	TASA DE NATALIDAD (por mil habitantes)
2000	22.71
2001	21.30
2002	20.20
2003	19.82
2004	19.80
2005	19.70
2006	20.00
2007	19.38
2008	19.43
2009	18.99
2010	18.56
2011	19.68
2012	19.90
2013	19.20
2014	19.20
2015	19.10
2016	18.60
2017	18.59
2018	18.48
2019	17.17
2020	16.35
2021	15.33
2022	14.50



Fuente: https://www.inec.gob.pa/archivos/P07055475202401031239 02Cuadro%201.pdf

CUADRO NO.2: TASA DE CRECIMIENTO POBLACIONAL.

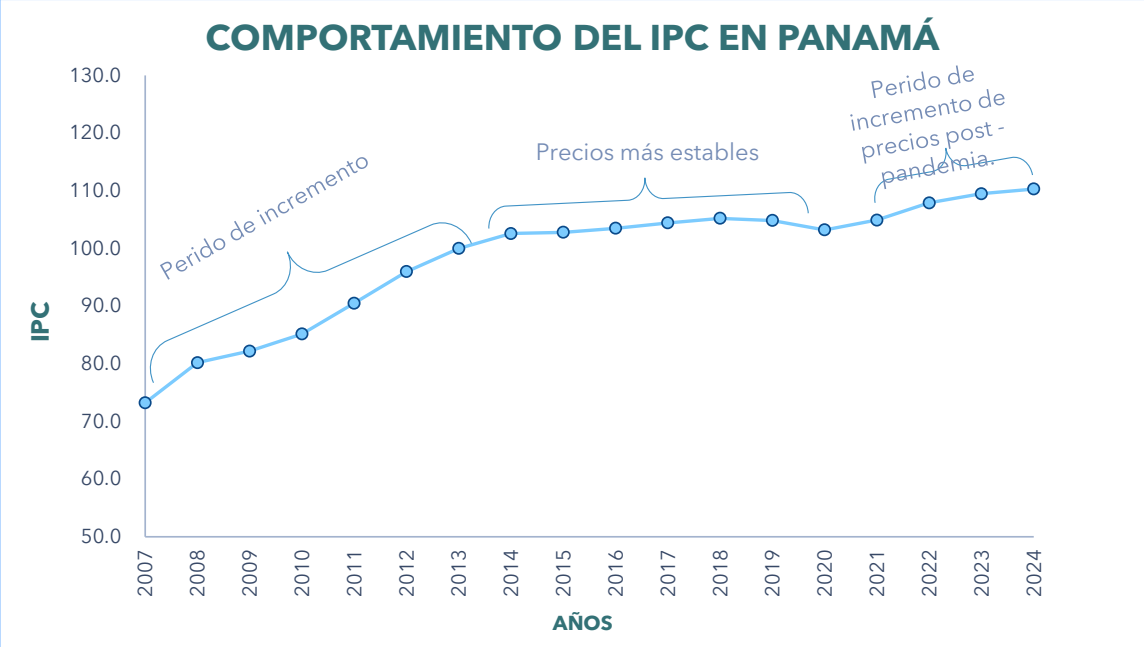
AÑO	TASA DE CRECIMIENTO (por cien habitantes)
2000	2.00
2001	1.99
2002	1.97
2003	1.96
2004	1.94
2005	1.92
2006	1.91
2007	1.89
2008	1.87
2009	1.86
2010	1.84
2011	1.81
2012	1.77
2013	1.74
2014	1.71
2015	1.67
2016	1.64
2017	1.61
2018	1.58
2019	1.54
2020	1.51
2021	1.48
2022	1.44
2023	1.41



Fuente: https://www.inec.gob.pa/archivos/P0045352762023100916225 5CUADRO%209.pdf

CUADRO NO.3: ÍNDICE DE PRECIOS AL CONSUMIDOR.

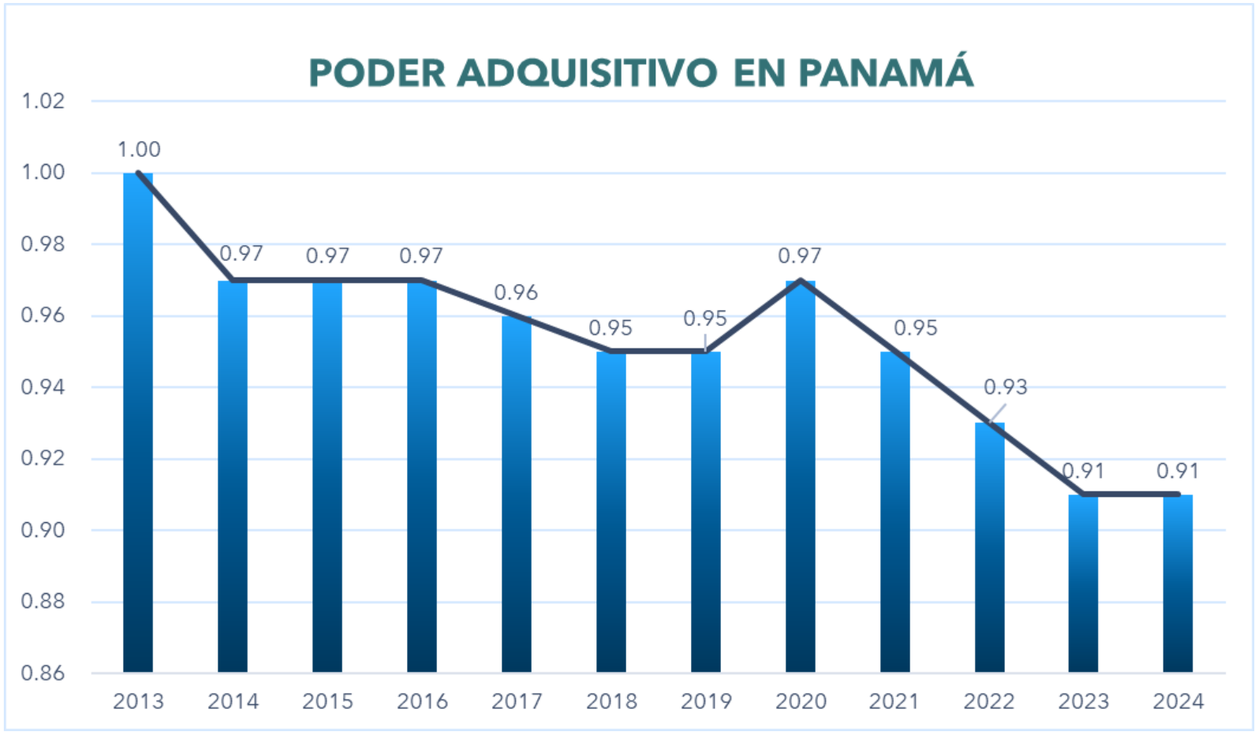
AÑO	Índice de Precios 2013=100 (a)	Tasa de Crecimiento
2007	73.23	
2008	80.21	9.52%
2009	82.19	2.48%
2010	85.17	3.63%
2011	90.50	6.26%
2012	96.00	6.07%
2013	100.00	4.17%
2014	102.60	2.60%
2015	102.80	0.19%
2016	103.50	0.68%
2017	104.43	0.90%
2018	105.23	0.76%
2019	104.86	-0.36%
2020	103.23	-1.55%
2021	104.91	1.63%
2022	107.90	2.85%
2023	109.50	1.48%
2024	110.30	0.73%
2025	110.17	-0.11%



Fuente: https://www.inec.gob.pa/archivos/A05334242024115115959Cuadro3.pdf

CUADRO NO.4: PODER ADQUISITIVO.

Año	Poder adquisitivo (en balboas)
2013	1.00
2014	0.97
2015	0.97
2016	0.97
2017	0.96
2018	0.95
2019	0.95
2020	0.97
2021	0.95
2022	0.93
2023	0.91
2024	0.91

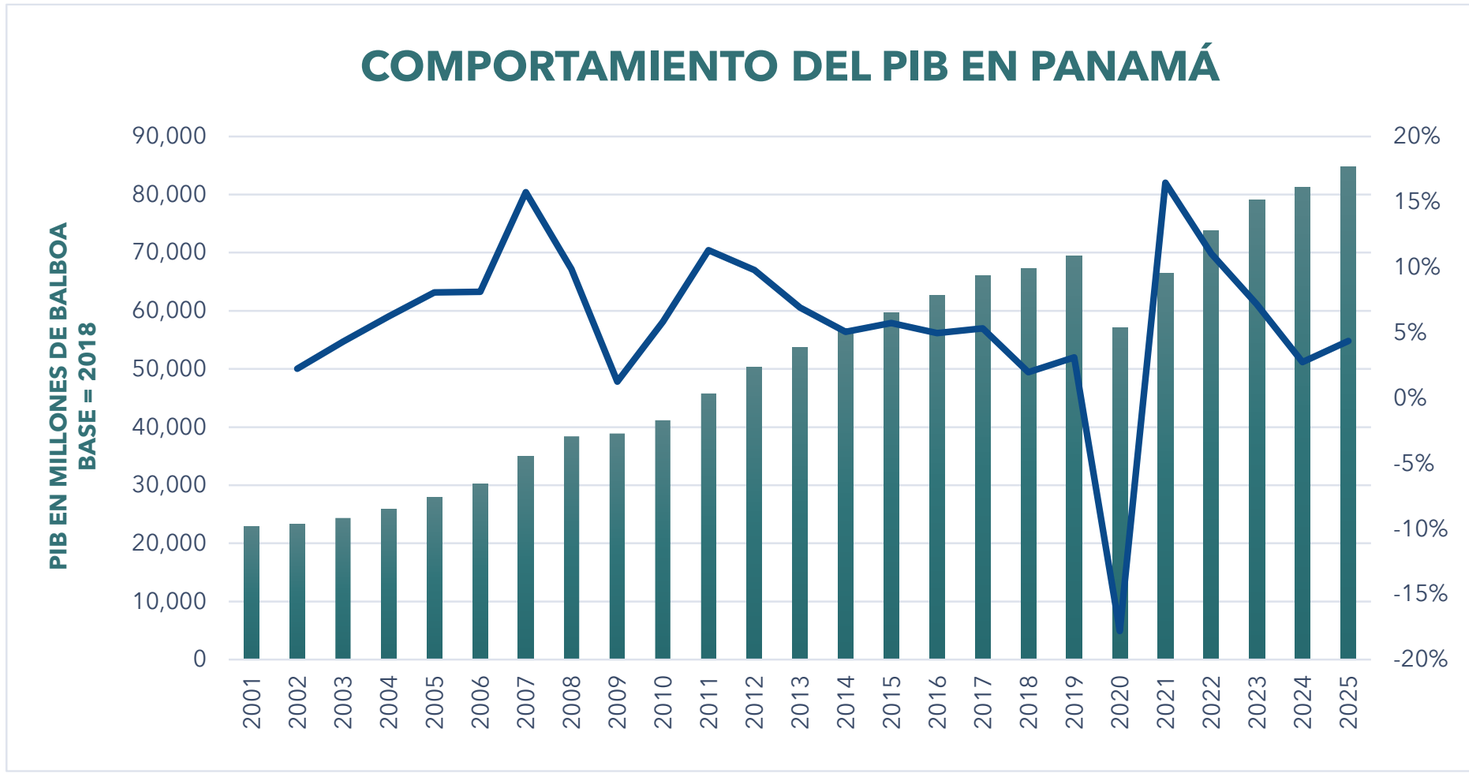


Fuente: https://www.inec.gob.pa/archivos/A05334242024011515220 4Cuadro5.pdf

CUADRO NO.5: PRODUCTO INTERNO BRUTO 2001-2023.

PIB HISTÓRICO		
AÑO	**MILLONES DE BALBOAS***	**TASA DE INCREMENTO ANUAL**
2001	B/.22,814.46	
2002	B/.23,322.97	2.23%
2003	B/.24,330.81	4.32%
2004	B/.25,849.15	6.24%
2005	B/.27,938.65	8.08%
2006	B/.30,207.09	8.12%
2007	B/.34,958.06	15.73%
2008	B/.38,403.31	9.86%
2009	B/.38,880.67	1.24%
2010	B/.41,146.64	5.83%
2011	B/.45,801.86	11.31%
2012	B/.50,280.78	9.78%
2013	B/.53,751.79	6.90%
2014	B/.56,475.26	5.07%
2015	B/.59,712.85	5.73%
2016	B/.62,678.44	4.97%
2017	B/.66,013.71	5.32%
2018	B/.67,316.47	1.97%
2019	B/.69,405.35	3.10%
2020	B/.57,036.46	-17.82%
2021	B/.66,428.73	16.47%
2022	B/.73,761.49	11.04%
2023	B/.79,047.48	7.17%
2024	B/.81,219.62	2.75%
2025	B/.84,752.88	4.35%

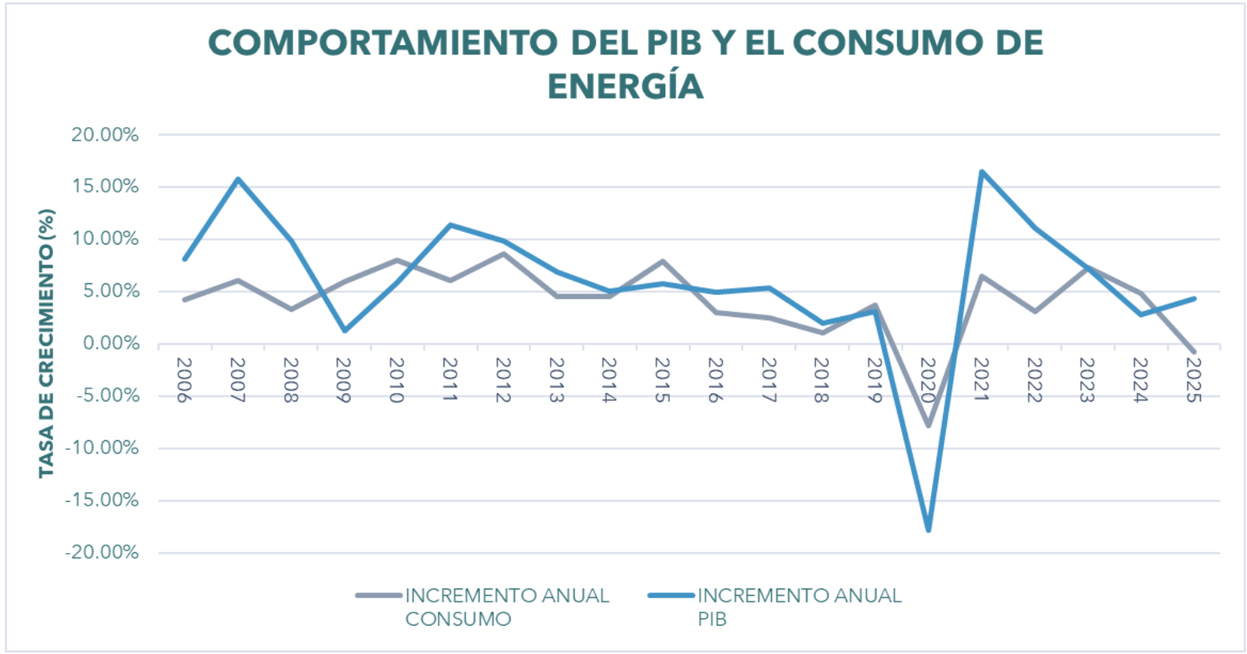
**Nota: Año de referencia 2018.*



Fuente: https://www.inec.gob.pa/publicaciones/Default2.aspx?ID_CATEGORIA=4&ID_SUBCATEGORIA=73

CUADRO NO.6: PRODUCTO INTERNO BRUTO Y CONSUMO EN GWH 2001-2019.

AÑO	PIB REAL	CONSUMO (GWh)	INCREMENTO ANUAL CONSUMO	INCREMENTO ANUAL PIB
2001	22,814.46	4,573.99		
2002	23,322.97	4,757.31	4.01%	2.23%
2003	24,330.81	4,918.01	3.38%	4.32%
2004	25,849.15	5,105.97	3.82%	6.24%
2005	27,938.65	5,274.14	3.29%	8.08%
2006	30,207.09	5,495.33	4.19%	8.12%
2007	34,958.06	5,826.42	6.02%	15.73%
2008	38,403.31	6,017.95	3.29%	9.86%
2009	38,880.67	6,376.16	5.95%	1.24%
2010	41,146.64	6,885.59	7.99%	5.83%
2011	45,801.86	7,300.86	6.03%	11.31%
2012	50,280.78	7,926.02	8.56%	9.78%
2013	53,751.79	8,280.92	4.48%	6.90%
2014	56,475.26	8,651.20	4.47%	5.07%
2015	59,712.85	9,336.86	7.93%	5.73%
2016	62,678.44	9,611.19	2.94%	4.97%
2017	66,013.71	9,848.73	2.47%	5.32%
2018	67,316.47	9,954.96	1.08%	1.97%
2019	69,405.35	10,325.77	3.72%	3.10%
2020	57,036.46	9,521.09	-7.79%	-17.82%
2021	66,428.73	10,139.03	6.49%	16.47%
2022	73,761.49	10,455.33	3.12%	11.04%
2023	79,047.48	11,216.65	7.28%	7.17%
2024	81,219.62	11,762.22	4.86%	2.75%
2025	84,752.88	11,673.70	-0.75%	4.35%



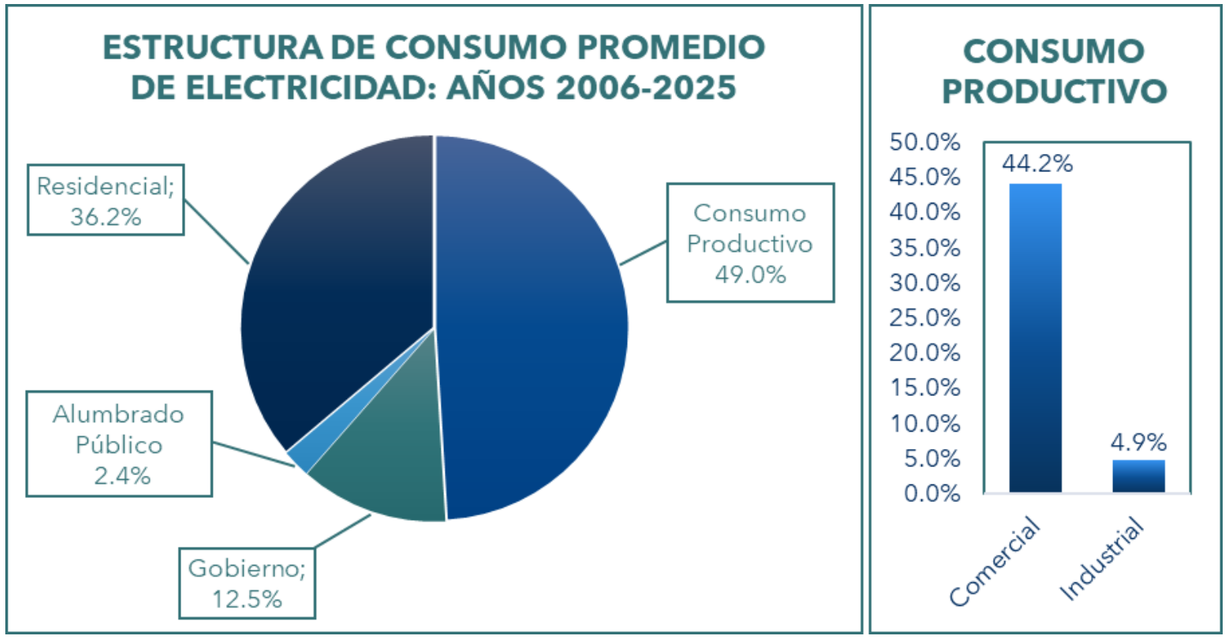
Fuente:

https://www.inec.gob.pa/publicaciones/Default3.aspx?ID_PUBLICACION=1210&ID_CATEGORIA=4&ID_SUBCATEGORIA=26

https://www.cnd.com.pa/index.php/estadisticas

CUADRO NO.7: ESTRUCTURA DE CONSUMO

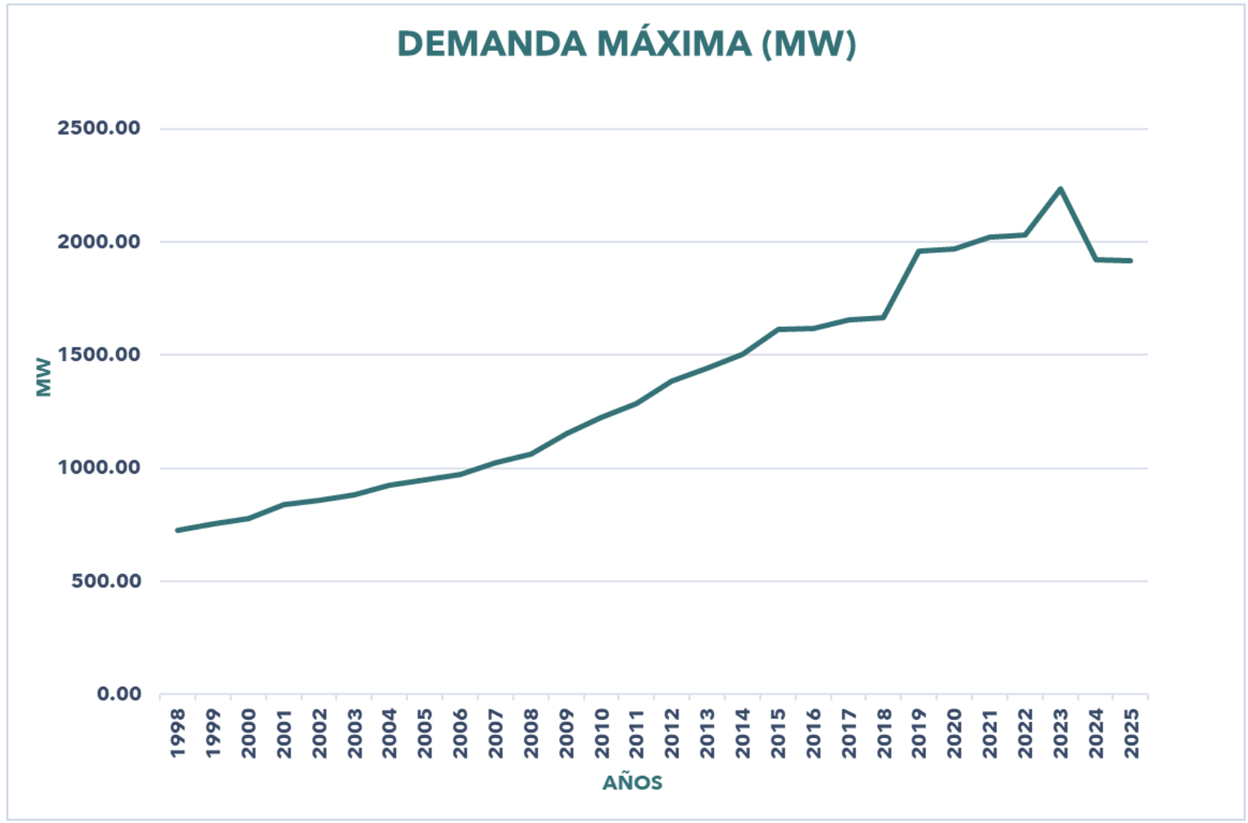
	RESIDENCIAL	COMERCIAL	INDUSTRIAL	GOBIERNO	ALUMBRADO
ENSA	1,156.75	1,082.30	161.92	384.44	47.36
EDEMET	1,204.80	1,865.89	144.06	444.34	91.12
EDECHI	284.30	284.54	49.58	82.30	33.63
TOTAL	2,645.84	3,232.73	355.55	911.09	172.11
%	36.2%	44.18%	4.86%	12.5%	2.4%
		CONSUMO PRODUCTIVO			
		49.0%			



Fuente: https://www.asep.gob.pa

CUADRO NO.8: DEMANDA MÁXIMA DEL SISTEMA ELÉCTRICO PANAMEÑO.

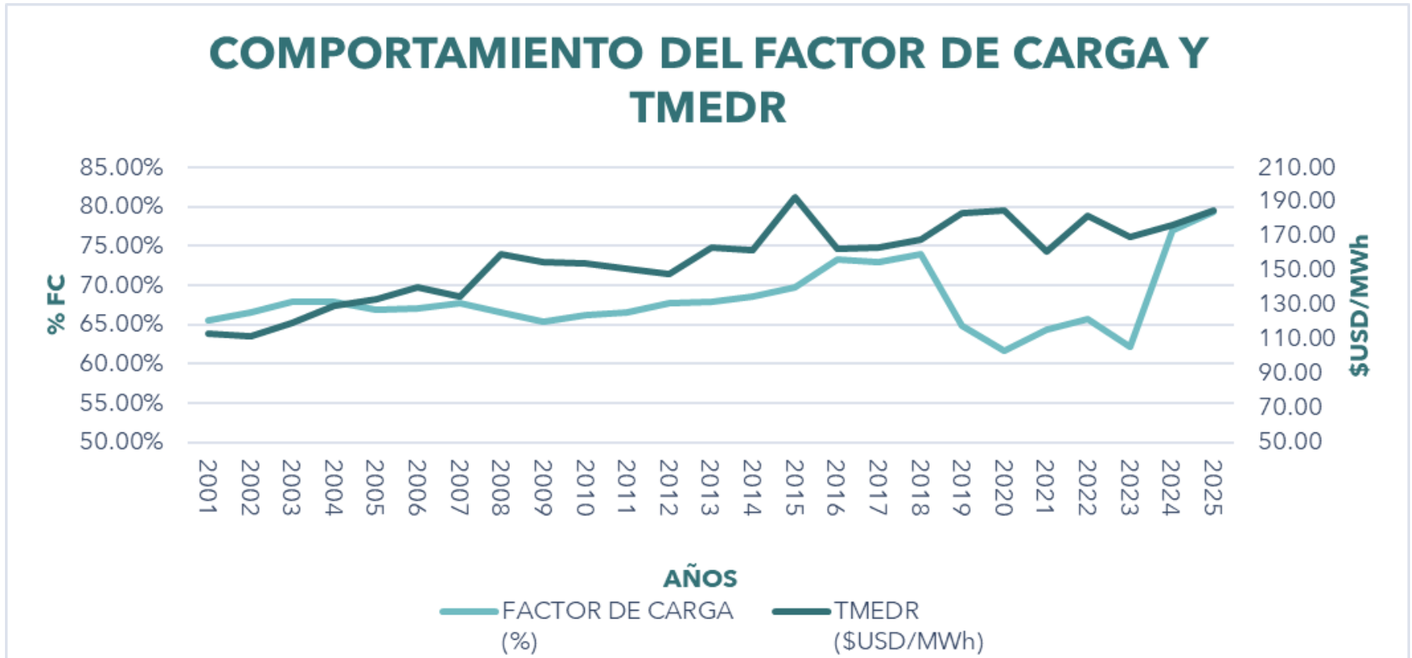
AÑOS	DEMANDA MÁXIMA (MW)	TASA DE CRECIMIENTO
1998	726.40	
1999	754.50	3.9%
2000	777.00	3.0%
2001	839.30	8.0%
2002	857.35	2.2%
2003	882.86	3.0%
2004	924.96	4.8%
2005	946.28	2.3%
2006	971.34	2.6%
2007	1024.16	5.4%
2008	1064.25	3.9%
2009	1153.99	8.4%
2010	1222.40	5.9%
2011	1286.46	5.2%
2012	1386.27	7.8%
2013	1443.94	4.2%
2014	1503.46	4.1%
2015	1612.00	7.2%
2016	1618.00	0.4%
2017	1657.00	2.4%
2018	1665.00	0.5%
2019	1961.00	17.8%
2020	1969.00	0.4%
2021	2020.00	2.6%
2022	2031.00	0.5%
2023	2235.00	10.0%
2024	1921.00	-14.0%
2025	1915.00	-0.3%



Fuente: https://www.cnd.com.pa/index.php/estadisticas

CUADRO NO.9: FACTOR DE CARGA Y TARIFA MEDIA DE DISTRIBUIDORAS REAL.

AÑOS	FACTOR DE CARGA (%)	TMEDR ($USD/MWh)
2001	65.59%	113.29
2002	66.56%	111.85
2003	67.93%	119.14
2004	67.92%	129.52
2005	66.83%	132.99
2006	66.95%	140.31
2007	67.75%	134.53
2008	66.57%	159.20
2009	65.34%	154.74
2010	66.15%	154.13
2011	66.46%	150.71
2012	67.74%	147.95
2013	67.86%	162.95
2014	68.50%	162.00
2015	69.75%	192.24
2016	73.32%	162.17
2017	73.01%	163.41
2018	73.93%	168.08
2019	64.89%	183.31
2020	61.59%	184.73
2021	64.32%	161.09
2022	65.77%	181.66
2023	62.13%	169.14
2024	76.98%	176.54
2025	79.38%	184.71



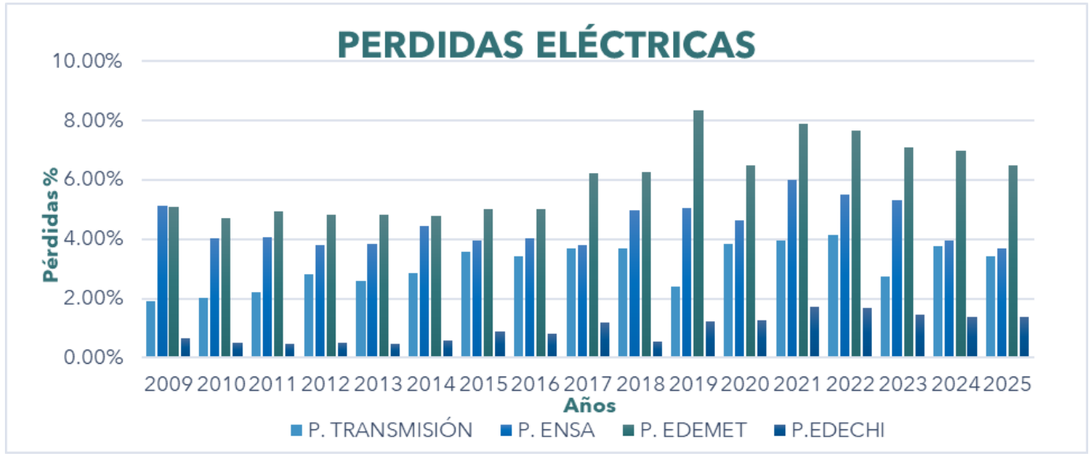
Fuente:

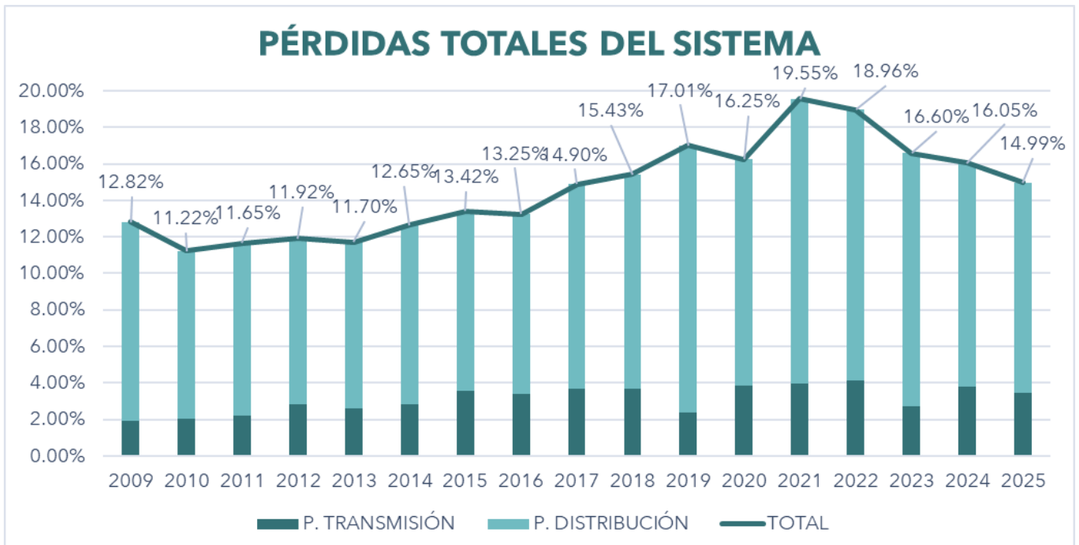
https://www.cnd.com.pa/index.php/estadisticas

CUADRO NO.10: PÉRDIDAS POR DISTRIBUIDORA Y TOTAL.

Años	P. TRANSMISIÓN	P. ENSA	P. EDEMET	P.EDECHI	P. DISTRIBUCIÓN	TOTAL	TASA DE VARIACIÓN
2009	1.92%	5.13%	5.09%	0.67%	10.89%	12.82%	-0.11%
2010	2.01%	4.02%	4.71%	0.49%	9.21%	11.22%	-12.46%
2011	2.20%	4.04%	4.94%	0.45%	9.44%	11.65%	3.79%
2012	2.80%	3.79%	4.84%	0.49%	9.11%	11.92%	2.32%
2013	2.59%	3.82%	4.82%	0.47%	9.12%	11.70%	-1.79%
2014	2.85%	4.43%	4.79%	0.58%	9.80%	12.65%	8.06%
2015	3.59%	3.96%	5.00%	0.87%	9.83%	13.42%	6.10%
2016	3.41%	4.01%	5.02%	0.81%	9.84%	13.25%	-1.26%
2017	3.69%	3.79%	6.22%	1.21%	11.21%	14.90%	12.44%
2018	3.69%	4.96%	6.25%	0.54%	11.74%	15.43%	3.57%
2019	2.40%	5.04%	8.32%	1.24%	14.61%	17.01%	10.26%
2020	3.84%	4.64%	6.50%	1.28%	12.41%	16.25%	-4.48%
2021	3.96%	5.99%	7.88%	1.73%	15.60%	19.55%	20.34%
2022	4.13%	5.49%	7.66%	1.67%	14.83%	18.96%	-3.04%
2023	2.73%	5.32%	7.08%	1.46%	13.87%	16.60%	-12.46%
2024	3.77%	3.94%	6.98%	1.37%	12.29%	16.05%	-3.28%
2025	3.43%	3.69%	6.47%	1.39%	11.55%	14.99%	-6.65%

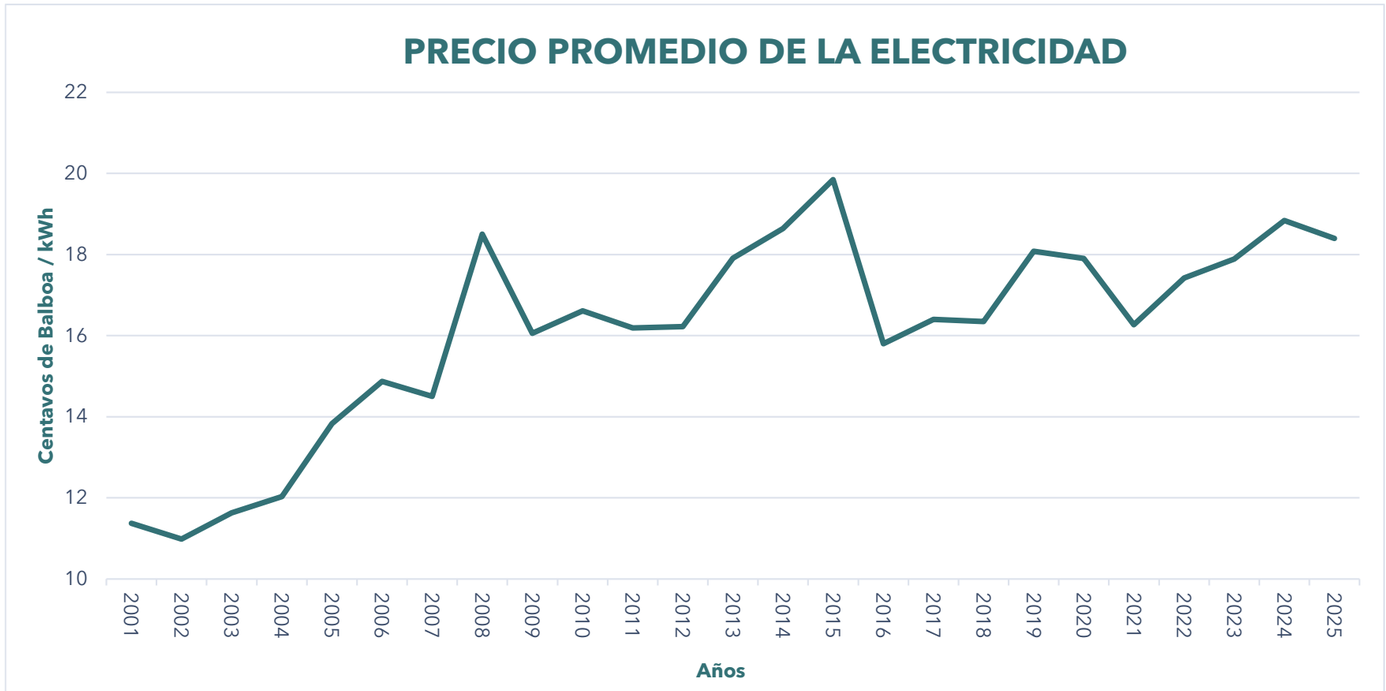
Fuente: https://asep.gob.pa/direcciones/services/estadisticas-de-electricidad/





CUADRO NO.11: PRECIOS DE LA ENERGÍA ELÉCTRICA.

AÑOS	CENTAVOS/ KWh	TASA DE CRECIMIENTO
2001	11.37	
2002	10.98	-3.43%
2003	11.63	5.92%
2004	12.03	3.44%
2005	13.83	14.96%
2006	14.87	7.52%
2007	14.5	-2.49%
2008	18.5	27.59%
2009	16.06	-13.19%
2010	16.61	3.42%
2011	16.19	-2.53%
2012	16.22	0.19%
2013	17.91	10.42%
2014	18.64	4.08%
2015	19.85	6.49%
2016	15.8	-20.40%
2017	16.4	3.80%
2018	16.35	-0.30%
2019	18.08	10.58%
2020	17.9	-1.00%
2021	16.27	-9.11%
2022	17.42	7.07%
2023	17.89	2.70%
2024	18.84	5.31%
2025	18.4	-2.34%



Fuente: https://asep.gob.pa/wp-content/uploads/electricidad/estadisticas/2023/segundo_semestre/precios.pdf

CUADRO NO.12: RESULTADO DE PROYECCIONES POR ESCENARIO (ENERGÍA Y POTENCIA)

PRONÓSTICOS DE LA GENERACIÓN Y POTENCIA
PLAN DE EXPANSIÓN DEL SISTEMA INTECONECTADO NACIONAL
2026 - 2040

AÑO	Pesimista - Bajo					Moderado - Medio					Optimista - Alto				
	GENERACIÓN		POTENCIA		Load Factor	GENERACIÓN		POTENCIA		Load Factor	GENERACIÓN		POTENCIA		Load Factor
	GWh	Δ%GWh	MW	Δ%MW	FC	GWh	Δ%GWh	MW	Δ%MW	FC	GWh	Δ%GWh	MW	Δ%MW	FC
2026	10,863.78		1,769.91		0.7007	11,316.43		1,843.65		0.7007	11,981.94		1,912.71		0.7151
2027	11,131.10	2.46%	1,837.25	3.81%	0.6916	11,714.48	3.52%	1,933.54	4.88%	0.6916	12,512.36	4.43%	2,017.06	5.46%	0.7081
2028	11,397.39	2.39%	1,903.82	3.62%	0.6834	12,119.73	3.46%	2,024.48	4.70%	0.6834	13,048.53	4.29%	2,124.35	5.32%	0.7012
2029	11,655.74	2.27%	1,969.60	3.46%	0.6756	12,524.97	3.34%	2,116.48	4.54%	0.6756	13,605.05	4.26%	2,237.08	5.31%	0.6942
2030	11,906.14	2.15%	2,034.57	3.30%	0.6680	12,930.21	3.24%	2,209.57	4.40%	0.6680	14,184.32	4.26%	2,355.81	5.31%	0.6873
2031	12,148.60	2.04%	2,098.73	3.15%	0.6608	13,335.46	3.13%	2,303.76	4.26%	0.6608	14,787.37	4.25%	2,480.89	5.31%	0.6804
2032	12,383.12	1.93%	2,162.05	3.02%	0.6538	13,740.70	3.04%	2,399.08	4.14%	0.6538	15,414.80	4.24%	2,612.62	5.31%	0.6735
2033	12,609.69	1.83%	2,224.52	2.89%	0.6471	14,145.94	2.95%	2,495.54	4.02%	0.6471	16,067.08	4.23%	2,751.27	5.31%	0.6667
2034	12,828.33	1.73%	2,286.13	2.77%	0.6406	14,551.19	2.86%	2,593.16	3.91%	0.6406	16,744.69	4.22%	2,897.13	5.30%	0.6598
2035	13,039.01	1.64%	2,346.86	2.66%	0.6342	14,956.43	2.78%	2,691.97	3.81%	0.6342	17,448.08	4.20%	3,050.52	5.29%	0.6529
2036	13,241.76	1.55%	2,406.69	2.55%	0.6281	15,361.67	2.71%	2,791.99	3.72%	0.6281	18,177.76	4.18%	3,211.75	5.29%	0.6461
2037	13,436.56	1.47%	2,465.62	2.45%	0.6221	15,766.91	2.64%	2,893.24	3.63%	0.6221	18,934.27	4.16%	3,381.17	5.27%	0.6393
2038	13,623.43	1.39%	2,523.61	2.35%	0.6163	16,172.16	2.57%	2,995.74	3.54%	0.6163	19,718.20	4.14%	3,559.15	5.26%	0.6324
2039	13,802.34	1.31%	2,580.65	2.26%	0.6105	16,577.40	2.51%	3,099.51	3.46%	0.6105	20,530.19	4.12%	3,746.06	5.25%	0.6256
2040	13,973.32	1.24%	2,636.74	2.17%	0.6050	16,982.64	2.44%	3,204.59	3.39%	0.6050	21,370.89	4.09%	3,942.34	5.24%	0.6188

