

ภาคผนวก ข

ข้อมูลการผลิตและการใช้พลังงาน

Energy Dashboard	Unit	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18
<b>Production Volumes</b>															
Plant A	tons	435.3	482.0	465.6	449.5	449.6	441.2	460.7	406.2	467.0	484.6	444.8	449.3	479.7	451.6
Case Study Plant	tons	1,160.0	1,004.0	963.0	1,104.0	963.0	922.0	1,102.3	930.6	1,125.5	783.2	583.0	451.4	1,022.6	1,122.4
Plant B - SCM/SBC	tons	1,705.3	963.5	765.0	897.3	1,473.1	1,095.4	1,356.3	507.0	1,840.3	1,375.6	152.6	2,065.1	1,768.1	1,537.5
Plant B - EVAP	tons	2,814.4	3,026.1	2,096.7	2,318.9	2,422.4	3,327.1	2,606.7	1,406.7	2,130.8	1,248.8	2,397.1	2,792.5	2,666.6	2,015.1
TOTAL Plant B	tons	4,519.6	3,989.7	2,861.7	3,216.2	3,895.5	4,422.5	3,963.0	1,913.7	3,971.1	2,624.4	2,549.7	4,857.5	4,434.7	3,552.6
All Factories	tons	6,115	5,476	4,290	4,770	5,308	5,786	5,526	3,251	5,564	3,872	3,577	5,758	5,937	5,127
						25,958.8				20,125.9					24,271.6
<b>Gas Consumption เปลี่ยนมาตรวัดแก๊สจาก Boiler 1 เป็น Boiler 2 ตั้งแต่ week 17</b>															
Boiler 1	Sm3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55,382.9	50,657.3
Boiler 3	Sm3	100,005.5	88,465.8	73,218.3	93,634.1	100,996.7	102,256.7	95,423.7	74,152.8	91,401.8	78,693.0	90,626.2	93,615.1	7,113.0	1,036.7
Boiler 4	Sm3	112,926.1	103,747.4	101,197.3	92,779.0	96,358.2	110,209.6	95,805.8	71,300.1	104,878.6	64,009.3	73,422.6	95,283.7	142,263.4	131,514.5
TOTAL BOILERS	Sm3	212,931.6	192,213.2	174,415.6	186,413.0	197,354.9	212,466.2	191,229.4	145,452.9	196,280.4	142,702.3	164,048.8	188,898.8	204,759.2	183,208.4
<b>Steam Production</b>															
Boiler 1	tons	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0	0.0	17.5	539.4	499.7
Boiler 3	tons	1,058.1	937.6	771.1	969.6	1,081.1	1,091.0	1,011	792	969	838.7	964.7	995.3	72.0	0.0
Boiler 4	tons	1,220.1	1,116.0	1,082.9	1,001.3	1,047.7	1,203.7	1,036	767	1,137	691.2	798.7	1,024.8	1,537.5	1,426.9
All Factories	tons	2,278.2	2,053.6	1,854.0	1,990.9	2,128.8	2,294.7	2,047.4	1,558.7	2,106.1	1,529.9	1,763.4	2,037.6	2,148.9	1,926.6
<b>Steam Consumption</b>															
Plant A	tons	390.7	357.0	360.0	358.6	356.0	368.5	347.3	296.1	371.1	372.0	363.9	360.2	377.7	222.0
Case Study Plant	tons	209.0	182.8	177.5	205.2	176.1	173.1	200.4	186.1	212.7	141.7	115.8	95.6	206.9	156.2
TOTAL Plant B	tons	1,339.4	1,153.9	997.0	1,102.1	1,203.6	1,365.1	1,115.6	696.8	1,183.1	686.3	1,001.1	1,290.7	1,272.4	730.9
Plant B Sterilizers	tons	830.4	779.7	710.7	743.2	785.2	956.0	742.3	411.8	743.9	392.3	709.5	833.8	821.9	488.6
Plant B USCM	tons	140.0	131.5	110.6	142.8	145.6	169.0	134.4	91.8	144.9	96.9	108.0	191.7	128.8	98.7
Plant B SCM	tons	328.7	230.9	167.4	206.7	264.0	253.9	231.7	182.2	279.1	170.6	183.6	222.4	295.4	139.5
Plant B Evaporators	tons	40.3	11.7	8.4	9.4	8.9	6.2	7.2	11.0	15.2	26.5	0.1	42.8	26.3	4.2
All Factories	tons	1,939.1	1,693.6	1,534.5	1,665.9	1,735.7	1,926.8	1,663.3	1,179.0	1,766.9	1,200.0	1,480.9	1,746.5	1,857.0	1,109.1
<b>Boiler Efficiency</b>															
Boiler 1	%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	86.2%	87.3%
Boiler 3	%	93.8%	94.0%	93.4%	93.7%	94.9%	94.4%	93.8%	94.5%	93.8%	94.3%	94.2%	94.1%	89.6%	0.1%
Boiler 4	%	95.8%	95.4%	94.9%	95.7%	96.4%	96.7%	95.7%	95.2%	96.0%	95.5%	96.2%	95.2%	95.6%	96.0%
<b>Refrigeration load</b>															
Total load cooling water	kWr	1,032,278	957,403	869,481	946,403	1,016,572	1,116,385	985,516	755,190	1,020,429	788,654	697,321	1,051,393	1,027,191	908,408
Total load chilled	kWr	132,151	190,124	166,839	189,931	179,370	196,600	169,225	154,315	163,312	131,931	167,947	198,979	198,751	179,777
Total load chilled + ice water	kWr	285,802	323,262	271,150	312,237	308,932	347,887	288,065	243,069	298,593	212,613	286,069	340,149	330,557	293,212
Electricity for cooling water	kW.hr	39,561.9	44,643.0	44,304.7	43,646.7	44,452.3	44,420.0	43,676.6	36,652.6	43,908.3	36,702.4	40,235.1	43,557.8	44,048.3	42,140.9
Electricity for chilled + ice water	kW.hr	122,037.8	123,069.9	118,184.9	120,816.7	118,236.8	118,700.0	116,375.0	112,781.9	118,311.0	111,246.7	115,646.7	117,127.2	117,787.9	116,201.0

Energy Dashboard	Unit	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31
<b>Production Volumes</b>														
Plant A	tons	418.1	0.0	0.0	145.6	358.0	394.3	342.0	445.9	397.0	449.4	491.4	354.1	82.5
Case Study Plant	tons	1,204.0	1,284.0	1,225.0	1,102.9	1,121.3	740.4	639.3	960.6	1,138.9	962.6	963.0	784.4	1,006.3
Plant B - SCM/SBC	tons	889.5	1,243.5	1,350.1	670.5	751.5	1,371.5	752.3	1,372.7	1,419.7	1,786.4	1,254.0	448.8	97.9
Plant B - EVAP	tons	2,174.7	795.2	2,870.1	1,501.9	2,813.6	1,825.0	1,385.5	2,102.0	2,317.8	2,857.6	2,169.9	2,113.9	1,817.3
TOTAL Plant B	tons	3,064.3	2,038.6	4,220.2	2,172.4	3,565.0	3,196.5	2,137.7	3,474.7	3,737.5	4,644.0	3,423.8	2,562.7	1,915.2
All Factories	tons	4,686	3,323	5,445	3,421	5,044	4,331	3,119	4,881	5,273	6,056	4,878	3,701	3,004
					16,875.0				17,375.8					22,912.8
<b>Gas Consumption เปลี่ยนมาตรวัดแก๊สจาก Boiler 1 เป็น Boiler 2 ตั้งแต่ week 17</b>														
Boiler 1	Sm3	48,148.8	15,955.0	33,128.3	35,981.1	46,272.2	287.5	33,238.0	12,943.4	7,994.5	0.0	10,064.1	6,428.2	0.0
Boiler 3	Sm3	50,294.1	110,349.6	83,857.5	64,402.7	23,007.5	62,635.8	8,815.6	65,095.1	84,069.4	99,237.4	71,530.9	83,490.5	67,713.3
Boiler 4	Sm3	86,547.6	389.7	66,983.1	45,697.1	125,218.7	95,926.9	96,959.8	108,446.5	104,265.7	104,557.0	103,198.7	74,296.6	76,165.6
TOTAL BOILERS	Sm3	184,990.4	126,694.3	183,968.9	146,080.9	194,498.4	158,850.2	139,013.4	186,484.9	196,329.6	203,794.4	184,793.7	164,215.3	143,878.9
<b>Steam Production</b>														
Boiler 1	tons	461.2	148.9	328.1	349.7	466.0	2.4	333.0	125.8	81.7	0.0	95.2	65.8	0.0
Boiler 3	tons	508.1	1,172.2	888.8	673.0	232.7	661.4	84.3	693.8	889.9	1,052.5	756.0	888.4	688.0
Boiler 4	tons	930.7	0.7	715.4	492.6	1,360.3	1,037.7	1,052.1	1,179.4	1,127.7	1,126.3	1,106.2	804.4	847.3
All Factories	tons	1,898.0	1,321.8	1,932.4	1,515.5	2,059.1	1,701.4	1,469.5	1,999.0	2,099.2	2,180.9	1,959.4	1,758.6	1,535.2
<b>Steam Consumption</b>														
Plant A	tons	349.5	0.0	1.7	202.4	330.6	363.5	310.2	382.6	352.4	345.8	390.2	326.3	95.7
Case Study Plant	tons	238.0	270.1	243.8	221.2	223.6	144.5	124.4	184.9	208.7	184.2	177.5	139.4	206.8
TOTAL Plant B	tons	996.0	632.0	1,262.1	732.7	1,200.8	849.8	738.0	1,160.5	1,231.9	1,334.6	1,126.3	1,033.9	946.3
Plant B Sterilizers	tons	685.0	346.9	942.7	489.8	839.8	548.1	434.3	692.2	797.9	865.0	710.4	698.5	610.4
Plant B USCM	tons	114.9	38.7	213.2	68.5	124.5	210.7	65.3	169.8	168.9	169.0	135.1	81.2	80.7
Plant B SCM	tons	180.1	146.7	93.2	167.1	235.4	80.0	232.2	235.6	253.8	268.4	257.1	253.9	254.9
Plant B Evaporators	tons	16.1	99.7	13.0	7.2	1.1	11.0	6.2	62.8	11.2	32.1	23.8	0.4	0.2
All Factories	tons	1,581.5	902.0	1,507.5	1,156.3	1,755.0	1,357.9	1,172.7	1,727.9	1,792.9	1,864.6	1,694.0	1,499.6	1,248.7
<b>Boiler Efficiency</b>														
Boiler 1	%	84.6%	82.4%	87.5%	85.6%	89.0%	72.4%	88.5%	85.9%	90.1%	#DIV/0!	83.4%	90.3%	#DIV/0!
Boiler 3	%	88.9%	93.8%	93.6%	92.3%	89.4%	93.3%	84.5%	94.1%	93.4%	93.6%	93.2%	93.9%	89.6%
Boiler 4	%	95.0%	15.0%	94.3%	95.3%	96.0%	95.6%	95.9%	96.1%	95.4%	95.2%	94.7%	95.5%	96.1%
<b>Refrigeration load</b>														
Total load cooling water	kWr	879,020	755,468	1,053,009	812,446	1,092,459	919,361	852,498	1,161,612	1,171,205.6	1,202,933.1	1,146,646.1	1,012,556.9	878,063.3
Total load chilled	kWr	172,396	110,539	173,463	137,989	175,759	155,048	134,317	165,982	165,838.5	147,575.2	165,934.6	134,646.2	96,711.1
Total load chilled + ice water	kWr	279,757	181,912	314,743	223,074	302,098	254,699	223,839	293,477	292,783.0	288,738.2	288,241.0	246,170.0	199,811.0
Electricity for cooling water	kW.hr	41,608.5	40,402.0	42,780.8	44,980.2	47,737.4	46,964.2	44,673.0	44,064.9	46,101.1	44,291.3	46,099.7	44,051.3	40,539.9
Electricity for chilled + ice water	kW.hr	116,152.8	108,908.0	115,946.9	109,408.6	119,273.6	114,843.8	113,285.4	120,815.5	118,401.3	116,121.2	117,835.2	113,342.7	108,554.4

Energy Dashboard	Unit	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	Week 40	Week 41	Week 42	Week 43
<b>Production Volumes</b>													
Plant A	tons	282.2	315.8	229.1	198.8	333.3	432.9	385.2	438.4	469.5	424.0	424.3	384.1
Case Study Plant	tons	432.7	949.6	608.8	825.9	538.6	1,137.5	947.0	1,048.4	1,203.0	1,120.0	861.2	1,140.0
Plant B - SCM/SBC	tons	1,277.5	1,168.4	1,314.3	784.1	1,429.5	892.5	1,210.1	1,669.4	1,061.4	406.3	1,020.0	1,270.0
Plant B - EVAP	tons	1,553.7	1,823.3	1,237.8	1,982.5	2,059.0	1,825.6	1,718.9	2,418.3	2,232.8	1,855.1	1,602.1	1,502.4
TOTAL Plant B	tons	2,831.2	2,991.7	2,552.1	2,766.6	3,488.5	2,718.1	2,929.0	4,087.7	3,294.1	2,261.4	2,622.1	2,772.4
All Factories	tons	3,546	4,257	3,390	3,791	4,360	4,289	4,261	5,575	4,967	3,805	3,908	4,296
					14,984.5								
<b>Gas Consumption เปลี่ยนมาตรวัดแก๊สจาก Boiler 1 เป็น Boiler 2 ตั้งแต่ week 17</b>													
Boiler 1	Sm3	0.0	23,593.9	16,004.2	15,962.6	2,932.2	143.8	476.7	45,803.1	0.0	0.0	548.6	0.0
Boiler 3	Sm3	63,067.2	100,928.6	59,930.6	41,486.1	83,880.2	77,209.9	87,561.5	29,220.0	75,117.6	62,189.4	59,003.7	64,096.3
Boiler 4	Sm3	100,913.5	62,692.6	52,477.1	101,102.7	91,768.8	98,768.3	85,647.1	126,259.2	114,587.1	103,047.4	105,317.5	105,589.9
TOTAL BOILERS	Sm3	163,980.7	187,215.1	128,412.0	158,551.4	178,581.2	176,121.9	173,685.4	201,282.2	189,704.7	165,236.8	164,869.8	169,686.2
<b>Steam Production</b>													
Boiler 1	tons	0.0	229.7	154.4	159.7	26.4	0.0	0.5	463.1	0.0	0.0	0.7	0.0
Boiler 3	tons	651.2	1,059.3	633.2	425.7	896.7	814.2	923.0	297.0	790.9	656.1	620.8	673.3
Boiler 4	tons	920.7	512.9	558.3	1,103.1	918.2	1,071.6	929.7	1,373.6	1,236.5	1,114.8	1,132.0	1,135.3
All Factories	tons	1,571.8	1,801.8	1,345.9	1,688.6	1,841.3	1,885.8	1,853.2	2,133.7	2,027.4	1,770.9	1,753.5	1,808.6
<b>Steam Consumption</b>													
Plant A	tons	291.3	296.4	221.2	233.9	350.2	421.6	398.6	424.9	422.2	384.9	392.8	337.6
Case Study Plant	tons	88.1	193.2	116.4	157.9	107.3	222.8	184.8	207.7	226.7	203.3	172.6	195.0
TOTAL Plant B	tons	952.5	1,014.3	847.1	1,079.0	1,161.7	1,008.7	1,045.0	1,268.6	1,176.3	1,010.2	998.1	732.7
Plant B Sterilizers	tons	564.9	620.6	392.9	664.1	654.8	590.6	598.4	745.3	710.4	588.3	550.0	433.3
Plant B USCM	tons	93.8	270.5	76.9	72.3	214.1	88.6	108.1	126.3	120.1	139.1	156.6	212.5
Plant B SCM	tons	288.9	89.3	301.4	334.9	238.2	312.3	321.7	381.8	332.7	272.6	286.1	86.0
Plant B Evaporators	tons	4.9	34.0	75.9	7.7	54.6	17.2	16.8	15.2	13.1	10.2	5.4	0.9
All Factories	tons	1,331.9	1,503.9	1,184.7	1,470.9	1,619.2	1,653.2	1,628.4	1,901.2	1,825.2	1,598.4	1,563.5	1,265.3
<b>Boiler Efficiency</b>													
Boiler 1	%	#DIV/0!	85.9%	85.2%	88.3%	79.4%	0.0%	9.8%	89.1%	#DIV/0!	#DIV/0!	10.7%	#DIV/0!
Boiler 3	%	91.2%	92.7%	93.3%	90.6%	94.2%	93.0%	92.9%	89.6%	92.9%	93.1%	92.9%	92.7%
Boiler 4	%	80.5%	72.2%	93.9%	96.3%	88.2%	95.7%	95.7%	95.9%	95.2%	95.5%	94.9%	94.9%
<b>Refrigeration load</b>													
Total load cooling water	kWr	992,246.2	1,098,116.2	852,427.0	817,883.0	1,109,233	961,315	988,645	1,112,846	1,023,330	862,552	861,565	996,487
Total load chilled	kWr	114,173.8	146,239.8	112,743.6	135,845.0	133,308	141,510	132,327	165,453	157,116	140,012	107,012	129,143
Total load chilled + ice water	kWr	214,329.6	261,854.3	204,054.5	231,869.6	255,811	245,217	238,630	301,333	279,137	247,023	217,500	234,596
Electricity for cooling water	kW.hr	42,465.1	44,774.2	37,338.2	45,116.0	39,262.4	45,430.9	44,727.7	45,802.8	48,099.8	45,945.2	41,879.0	38,930.4
Electricity for chilled + ice water	kW.hr	113,081.9	119,699.9	101,295.7	121,705.4	105,145.9	116,702.7	115,539.2	118,629.6	117,272.7	116,456.0	113,793.8	113,139.9

**หมายเหตุ:**

1. การปรับเปลี่ยนรูปแบบการเดินเครื่องของหม้อไอน้ำให้มีประสิทธิภาพ เริ่มทำการดำเนินการปรับปรุงแต่สัปดาห์ที่ 17
2. การลงมือศูนย์ระบบทำความเย็น เริ่มทำการดำเนินการดำเนินการตั้งแต่สัปดาห์ที่ 27
3. การปรับปรุงเปลี่ยนโครงสร้างท่อระบบทำน้ำเย็น เริ่มทำการดำเนินการดำเนินการตั้งแต่สัปดาห์ที่ 36