# Confidential Release

**Case Number:**
**91-698-EL-FOR**
**92-706-EL-FOR**
**93-204-EL-FOR**

**Date of Confidential Document:**

**September 24, 1993**

**Today's Date:**

**July 29, 2009**

**Exhibit 7.1, 7.2, 7.3, 7.4 of testimony of Carl Evans, PUCO Staff**

04
UTILITIES COMMISSION
OF OHIO
180 EAST BROAD STREET
COLUMBUS, OHIO 43266-0573

91-698-EL-FOR ICN. #0041
92-706-EL-FOR ICN # 0046
93-204-EL-FOR ICN #0036

Exhibit 7.1, 7.2, 7.3, 7.4 of testimony of Carl R. Evans, PUCO staff.

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PUBLIC UTILITIES COMMISSION OF OHIO

Exhibit CRE-7.1

# MAD RIVER PROJECT

| year | steam payment (1) | deferred lease payment (2) | electricity revenue (3) | OES net payment (4)= (1)-(2)-(3) | capacity value (5) | avoided energy cost (6) | Mad River cost/ (savings) (4)-(5)-(6) |
|---|---|---|---|---|---|---|---|
| 1996 | 11,352,600 | 0 | 2,603,021 | 8,749,579 | 0 | 5,838,658 | 2,910,921 |
| 1997 | 11,818,057 | 0 | 2,822,798 | 8,995,258 | 2,254,410 | 6,278,635 | 462,214 |
| 1998 | 12,302,597 | 0 | 3,042,576 | 9,260,021 | 3,475,780 | 7,086,170 | (1,301,929) |
| 1999 | 12,794,701 | 0 | 3,262,354 | 9,532,347 | 3,596,030 | 8,122,513 | (2,186,196) |
| 2000 | 13,306,489 | 0 | 3,757,978 | 9,548,511 | 3,720,720 | 7,609,371 | (1,781,579) |
| 2001 | 13,838,748 | 1,678,800 | 4,006,560 | 8,153,388 | 3,849,480 | 8,260,812 | (3,956,904) |
| 2002 | 14,392,298 | 1,724,400 | 4,184,822 | 8,483,076 | 3,850,960 | 8,817,264 | (4,185,148) |
| 2003 | 14,967,990 | 1,771,200 | 4,329,437 | 8,867,353 | 4,120,690 | 9,011,060 | (4,264,397) |
| 2004 | 15,566,710 | 1,821,600 | 4,518,936 | 9,226,174 | 4,122,540 | 9,557,775 | (4,454,142) |
| 2005 | 16,189,378 | 1,872,000 | 4,700,227 | 9,617,151 | 4,124,390 | 10,287,265 | (4,794,504) |
| 2006 | 16,836,953 | 1,926,000 | 4,895,966 | 10,014,987 | 4,126,240 | 9,570,994 | (3,682,247) |
| 2007 | 17,510,432 | 1,981,200 | 5,065,454 | 10,463,777 | 4,128,090 | 10,198,400 | (3,862,713) |
| 2008 | 18,210,849 | 2,038,800 | 5,297,870 | 10,874,178 | 4,885,480 | 11,011,554 | (5,022,856) |
| 2009 | 18,939,283 | 2,098,800 | 5,480,035 | 11,360,448 | 5,054,570 | 11,632,696 | (5,326,819) |
| 2010 | 19,696,854 | 2,161,200 | 5,725,608 | 11,810,046 | 5,229,580 | 12,404,738 | (5,824,272) |
| 2011 | 20,484,728 | 2,226,000 | 5,915,933 | 12,342,795 | 5,410,880 | 13,274,181 | (6,342,266) |
| 2012 | 21,304,117 | 2,294,400 | 6,175,142 | 12,834,575 | 5,598,470 | 14,238,425 | (7,002,320) |
| 2013 | 22,156,282 | 2,364,000 | 6,403,104 | 13,389,178 | 5,792,350 | 15,331,416 | (7,734,587) |
| 2014 | 23,042,533 | 2,437,200 | 6,677,390 | 13,927,943 | 5,794,940 | 16,251,300 | (8,118,298) |
| 2015 | 23,964,235 | 2,512,800 | 6,955,997 | 14,495,438 | 5,797,900 | 17,226,378 | (8,528,841) |
| 2016 | 24,922,804 | 2,592,000 | 7,244,880 | 15,085,924 | 5,800,490 | 18,259,961 | (8,974,527) |
| 2017 | 25,919,716 | 2,674,800 | 7,508,952 | 15,735,964 | 5,803,820 | 19,355,559 | (9,423,415) |
| 2018 | 26,956,505 | 2,760,000 | 7,814,352 | 16,382,153 | 5,806,780 | 20,516,892 | (9,941,520) |
| 2019 | 28,034,765 | 2,848,800 | 8,125,032 | 17,060,933 | 5,810,110 | 21,747,906 | (10,497,083) |
| 2020 | 29,156,156 | 2,941,200 | 8,446,469 | 17,768,487 | 5,813,440 | 23,052,780 | (11,097,733) |
| 2021 | 30,322,402 | 2,499,600 | 8,804,102 | 19,018,699 | 5,817,140 | 24,435,947 | (11,234,388) |
| 2022 | 31,535,298 | 2,599,200 | 9,113,885 | 19,822,213 | 5,820,840 | 25,902,104 | (11,900,731) |
| 2023 | 32,796,710 | 2,703,600 | 9,488,995 | 20,604,115 | 5,824,910 | 27,456,230 | (12,677,026) |
| 2024 | 34,108,578 | 2,811,600 | 9,877,262 | 21,419,716 | 5,829,350 | 29,103,604 | (13,513,238) |
| 2025 | 35,472,921 | 2,924,400 | 10,253,726 | 22,294,795 | 5,834,160 | 30,849,820 | (14,389,185) |
| NPV = | 138,081,778 | 10,184,731 | 38,189,393 | 89,707,653 | 32,020,380 | 86,843,311 | (29,156,037) |

Exhibit CRE-7.4

| year | avoided energy cost (2) | weighted average ($/MWh) | marginal variable energy cost (1) --summer-- peak 552 hrs | mid-peak 644 hrs | off-peak 1012 hrs | marginal variable energy cost (1) --winter-- peak 2184 hrs | mid-peak 1365 hrs | off-peak 3003 hrs |
|---|---|---|---|---|---|---|---|---|
| 1996 | 5,838,658 | 21.19 | 27.96 | 22.83 | 15.62 | 24.96 | 23.67 | 17.61 |
| 1997 | 6,278,635 | 22.79 | 30.87 | 25.39 | 16.98 | 26.50 | 25.18 | 18.92 |
| 1998 | 7,086,170 | 25.72 | 36.38 | 29.48 | 18.26 | 30.33 | 28.95 | 20.65 |
| 1999 | 8,122,513 | 29.48 | 42.36 | 34.55 | 20.30 | 35.46 | 33.94 | 22.75 |
| 2000 | 7,609,371 | 27.62 | 37.08 | 32.29 | 20.91 | 32.26 | 31.11 | 22.18 |
| 2001 | 8,260,812 | 29.98 | 40.84 | 34.88 | 22.27 | 35.02 | 33.96 | 24.07 |
| 2002 | 8,817,264 | 32.00 | 42.81 | 37.43 | 23.80 | 37.01 | 36.38 | 25.99 |
| 2003 | 9,011,060 | 32.71 | 41.19 | 37.52 | 25.08 | 37.34 | 36.84 | 27.44 |
| 2004 | 9,557,775 | 34.69 | 45.17 | 40.66 | 26.61 | 39.49 | 38.83 | 28.84 |
| 2005 | 10,287,265 | 37.34 | 51.39 | 44.69 | 29.03 | 42.36 | 41.06 | 30.64 |
| 2006 | 9,570,994 | 34.74 | 42.78 | 39.22 | 27.33 | 39.82 | 38.93 | 29.20 |
| 2007 | 10,198,400 | 37.02 | 47.04 | 42.50 | 28.82 | 42.18 | 41.61 | 30.92 |
| 2008 | 11,011,554 | 39.97 | 51.34 | 46.56 | 31.22 | 45.14 | 44.20 | 33.73 |
| 2009 | 11,632,696 | 42.22 | 56.12 | 49.71 | 31.94 | 47.89 | 47.28 | 35.11 |
| 2010 | 12,404,738 | 45.03 | 59.74 | 52.86 | 34.09 | 51.32 | 50.59 | 37.22 |
| 2011 | 13,274,181 | 48.18 | 65.93 | 58.00 | 37.32 | 55.15 | 53.19 | 39.13 |
| 2012 | 14,238,425 | 51.68 | 69.17 | 61.95 | 38.90 | 59.51 | 57.84 | 42.08 |
| 2013 | 15,331,416 | 55.65 | 75.71 | 66.21 | 40.68 | 64.98 | 62.59 | 44.80 |
| 2014 | 16,251,300 | 58.99 | 80.25 | 70.18 | 43.12 | 68.88 | 66.35 | 47.49 |
| 2015 | 17,226,378 | 62.53 | 85.07 | 74.39 | 45.71 | 73.01 | 70.33 | 50.34 |
| 2016 | 18,259,961 | 66.28 | 90.17 | 78.86 | 48.45 | 77.39 | 74.55 | 53.36 |
| 2017 | 19,355,559 | 70.26 | 95.58 | 83.59 | 51.36 | 82.04 | 79.02 | 56.56 |
| 2018 | 20,516,892 | 74.47 | 101.32 | 88.60 | 54.44 | 86.96 | 83.76 | 59.95 |
| 2019 | 21,747,906 | 78.94 | 107.40 | 93.92 | 57.71 | 92.18 | 88.79 | 63.55 |
| 2020 | 23,052,780 | 83.68 | 113.84 | 99.56 | 61.17 | 97.71 | 94.11 | 67.36 |
| 2021 | 24,435,947 | 88.70 | 120.67 | 105.53 | 64.84 | 103.57 | 99.76 | 71.40 |
| 2022 | 25,902,104 | 94.02 | 127.91 | 111.86 | 68.73 | 109.78 | 105.74 | 75.69 |
| 2023 | 27,456,230 | 99.66 | 135.59 | 118.57 | 72.85 | 116.37 | 112.09 | 80.23 |
| 2024 | 29,103,604 | 105.64 | 143.72 | 125.69 | 77.22 | 123.35 | 118.81 | 85.04 |
| 2025 | 30,849,820 | 111.98 | 152.34 | 133.23 | 81.86 | 130.75 | 125.94 | 90.15 |

(1) data from Form IRP-2, revised 5/24/93
(2) annual value = weighted avg. * 37 MW * 8760 hrs * .85

| year | demand related capacity cost allocation w/trans-mission (1) | annual capacity value (2) | estimated electricity revenue (3) |
|---|---|---|---|
| 1996 | 0 | 0 | 2,603,021 |
| 1997 | 60.93 | 2,254,410 | 2,822,798 |
| 1998 | 93.94 | 3,475,780 | 3,042,576 |
| 1999 | 97.19 | 3,596,030 | 3,262,354 |
| 2000 | 100.56 | 3,720,720 | 3,757,978 |
| 2001 | 104.04 | 3,849,480 | 4,006,560 |
| 2002 | 104.08 | 3,850,960 | 4,184,822 |
| 2003 | 111.37 | 4,120,690 | 4,329,437 |
| 2004 | 111.42 | 4,122,540 | 4,518,936 |
| 2005 | 111.47 | 4,124,390 | 4,700,227 |
| 2006 | 111.52 | 4,126,240 | 4,895,966 |
| 2007 | 111.57 | 4,128,090 | 5,065,454 |
| 2008 | 132.04 | 4,885,480 | 5,297,870 |
| 2009 | 136.61 | 5,054,570 | 5,480,035 |
| 2010 | 141.34 | 5,229,580 | 5,725,608 |
| 2011 | 146.24 | 5,410,880 | 5,915,933 |
| 2012 | 151.31 | 5,598,470 | 6,175,142 |
| 2013 | 156.55 | 5,792,350 | 6,403,104 |
| 2014 | 156.62 | 5,794,940 | 6,677,390 |
| 2015 | 156.7 | 5,797,900 | 6,955,997 |
| 2016 | 156.77 | 5,800,490 | 7,244,880 |
| 2017 | 156.86 | 5,803,820 | 7,508,952 |
| 2018 | 156.94 | 5,806,780 | 7,814,352 |
| 2019 | 157.03 | 5,810,110 | 8,125,032 |
| 2020 | 157.12 | 5,813,440 | 8,446,469 |
| 2021 | 157.22 | 5,817,140 | 8,804,102 |
| 2022 | 157.32 | 5,820,840 | 9,113,885 |
| 2023 | 157.43 | 5,824,910 | 9,488,995 |
| 2024 | 157.55 | 5,829,350 | 9,877,262 |
| 2025 | 157.68 | 5,834,160 | 10,253,726 |

(1) Staff calculation
(2) annual value is based on 37000 kW
(3) based on 85% load factor and Staff data request #110

| year | assumed escalation rate (1) | estimated steam payment (2) | monthly lease payment with deferral (1) | annual lease payment with deferral |
|---|---|---|---|---|
| 1996 | | 11,352,600 | 0 | 0 |
| 1997 | 1.041 | 11,818,057 | 0 | 0 |
| 1998 | 1.041 | 12,302,597 | 0 | 0 |
| 1999 | 1.040 | 12,794,701 | 0 | 0 |
| 2000 | 1.040 | 13,306,489 | 0 | 0 |
| 2001 | 1.040 | 13,838,748 | 139,900 | 1,678,800 |
| 2002 | 1.040 | 14,392,298 | 143,700 | 1,724,400 |
| 2003 | 1.040 | 14,967,990 | 147,600 | 1,771,200 |
| 2004 | 1.040 | 15,566,710 | 151,800 | 1,821,600 |
| 2005 | 1.040 | 16,189,378 | 156,000 | 1,872,000 |
| 2006 | 1.040 | 16,836,953 | 160,500 | 1,926,000 |
| 2007 | 1.040 | 17,510,432 | 165,100 | 1,981,200 |
| 2008 | 1.040 | 18,210,849 | 169,900 | 2,038,800 |
| 2009 | 1.040 | 18,939,283 | 174,900 | 2,098,800 |
| 2010 | 1.040 | 19,696,854 | 180,100 | 2,161,200 |
| 2011 | 1.040 | 20,484,728 | 185,500 | 2,226,000 |
| 2012 | 1.040 | 21,304,117 | 191,200 | 2,294,400 |
| 2013 | 1.040 | 22,156,282 | 197,000 | 2,364,000 |
| 2014 | 1.040 | 23,042,533 | 203,100 | 2,437,200 |
| 2015 | 1.040 | 23,964,235 | 209,400 | 2,512,800 |
| 2016 | 1.040 | 24,922,804 | 216,000 | 2,592,000 |
| 2017 | 1.040 | 25,919,716 | 222,900 | 2,674,800 |
| 2018 | 1.040 | 26,956,505 | 230,000 | 2,760,000 |
| 2019 | 1.040 | 28,034,765 | 237,400 | 2,848,800 |
| 2020 | 1.040 | 29,156,156 | 245,100 | 2,941,200 |
| 2021 | 1.040 | 30,322,402 | 208,300 | 2,499,600 |
| 2022 | 1.040 | 31,535,298 | 216,600 | 2,599,200 |
| 2023 | 1.040 | 32,796,710 | 225,300 | 2,703,600 |
| 2024 | 1.040 | 34,108,578 | 234,300 | 2,811,600 |
| 2025 | 1.040 | 35,472,921 | 243,700 | 2,924,400 |

(1) from Exhibit to the Lease Agreement, Sample Periodic Rent Calculation

(2) 1996 payment based on 85% load factor and 3,060 million lbs steam at $3.425/1000 lbs plus remainder at $3.00/1000 lbs