

Iatan Unit 2 In-Service Test Criteria

1. Unit must demonstrate that it can operate at its design minimum load (340 MWnet) or above.

Hours at or above design minimum load / 400 hours \geq 0.80

2. Unit must be able to operate at or above its design capacity factor for a reasonable period of time. If the design capacity factor is not specified it will be assumed to be 0.60 unless the utility can offer evidence justifying a lower value.

Design capacity factor \leq energy generated for a continuous period of 168 hours / (design full load [850 MWnet] x 168 hours)

3. Unit must operate at an average capacity equal to 98% of its design maximum continuous rating [850 MWnet] for four (4) hours.

4. Unit must be operated so as to show a clear and obvious trend toward the predominate use of coal as its primary fuel. Test period will be thirty (30) days. The following items will be used as an indication of the trend for coal operation:

- a) Boiler control tuning completed such that the unit can operate safely with all control systems in auto.
- b) Ash build up in the furnace and backpass areas shall be monitored and be within expected levels.
- c) All boiler/turbine interlocks shall be proven to work as designed.
- d) Sootblowing timing and sequences shall be set properly to clean the tube areas.
- e) All critical alarms brought into the control room shall be operational and functioning properly.
- f) At the end of the test period, oil burn levels, if applicable, will be at or near design levels while burning coal.
- g) Oil ignitors are functioning in accordance with specifications.

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- h) Coal handling systems, from rail car unloading to pulverizers, are capable of supplying primary fuel for sustained operation during the testing period.
- 5. Unit must have successfully completed all major equipment startup test procedures. For purposes of this paragraph, major equipment includes: steam generator, turbine-generator, cooling tower/circulating water system, boiler feed pump(s), coal receiving/handling equipment, pulverizers, ash-handling equipment, condensate and feedwater systems, combustion air systems, flue gas systems, on-site electrical distribution system, instrumentation and controls systems (including distributed control system), and chemical storage/transfer systems.
- 6. All major equipment operates satisfactorily to support compliance with in-service criteria 1 through 4 (as listed above). For purposes of this paragraph, major equipment includes: steam generator, turbine-generator, cooling tower/circulating water system, boiler feed pump(s), coal receiving/handling equipment, pulverizers, ash-handling equipment, condensate and feedwater systems, combustion air systems, flue gas systems, on-site electrical distribution system, instrumentation and controls systems (including distributed control system), and chemical storage/transfer systems.
- 7. Sufficient transmission interconnection facilities shall exist for the total plant design net electrical capacity at the time the newest unit is declared fully operational and used for service.
- 8. Sufficient transmission facilities shall exist for EDE's share of the total plant design net electrical capacity from the generating station into the EDE service territory at the time the newest unit is declared fully operational and used for service.
- 9. Equipment installed to comply with emission requirements shall be operational and demonstrate the ability to remove 93% or more of the NO_x, SO₂, particulate, and mercury emissions they were installed to remove over a continuous four (4) hour period while operating at or above 95% of its design load. This equipment shall also be required to demonstrate that it is able to remove 88% or more of these same emissions it was

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installed to remove over a continuous 120 hour period while operating at or above 80% of its design load.

10. Emissions Control Equipment. The utility and the Commission Staff agree that the in-service testing requirements of this Paragraph are equivalent to the performance criteria stated in Paragraph 9 above and contained in the Stipulation.¹ Each equipment system as set forth in Subparagraphs (a) – (d) below shall be evaluated for successful completion of in-service testing on an individual basis. The failure of the utility to achieve the emissions or removal limits specified in the in-service testing for a given system will not impact the utility's ability to include all systems demonstrated to meet the applicable emissions or removal limits in the utility's rate recovery regulatory proceeding for Iatan Unit 2.

a) NO_x Control Equipment

- i. All major construction work is complete.
- ii. All preoperational tests have been successfully completed.
- iii. Equipment successfully meets the operational contract guarantees necessary to achieve the emission levels described in subparagraphs 10(a)(iv) and 10(a)(v) below.
- iv. The equipment shall be operational and demonstrate its ability to operate at a NO_x emission level of less than or equal to 0.054 lb/mmBtu over a continuous four (4) hour period while the generating unit is operating at or above 95% of its design load (850 MWnet).
- v. The equipment shall also demonstrate its ability to operate at a NO_x emission level of less than or equal to 0.057 lb/mmBtu over a continuous 120-hour period while the generating unit is operating at or above 80% of its design load (850 MWnet).

b) SO₂ Control Equipment

¹ Paragraph 10 identifies the criteria and emissions/removal testing that will demonstrate the utility's achievement of the criteria contained in Paragraph 9. The language of Paragraph 9 is also contained in the Stipulation. The utility and Staff calculated the numerical values and/or percentages contained in Paragraph 10 from the Iatan Unit 2 design limits for each of the major components of the AQCS equipment and the emissions percent or rate of removal requirements for the testing described in Paragraph 9 and the Stipulation. A chart summarizing the testing requirements is contained in the attached Appendix A.

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- i. All major construction work is complete.
 - ii. All preoperational tests have been successfully completed.
 - iii. Equipment successfully meets the operational contract guarantees necessary to achieve the emission levels described in subparagraphs 10(b)(iv) and 10(b)(v) below.
 - iv. The equipment shall be operational and demonstrate its ability to operate at a SO₂ reduction efficiency equal to or greater than 91% over a continuous four (4) hour period while the generating unit is operating at or above 95% of its design load (850 MWnet).
 - v. The equipment shall also demonstrate its ability to operate at a SO₂ reduction efficiency equal to or greater than 86% over a continuous 120-hour period while the generating unit is operating at or above 80% of its design load (850 MWnet).
- c) Particulate and Opacity Control Equipment
- i. All major construction work is complete.
 - ii. All preoperational tests have been successfully completed.
 - iii. Equipment successfully meets the operational contract guarantees necessary to achieve the emission levels described in subparagraphs 10(c)(iv) and 10(c)(v) below.
 - iv. The equipment shall be operational and demonstrate its ability to operate at a stack opacity (six minute average) less than or equal to 11% over a continuous four (4) hour period while the generating unit is operating at or above 95% of its design load (850 MWnet).
 - v. The equipment shall also demonstrate its ability to operate at a stack opacity (six minute average) less than or equal to 11.5% over a continuous 120-hour period while the generating unit is operating at or above 80% of its design load (850 MWnet).
- d) Mercury Removal Equipment
- i. All major construction work is complete.
 - ii. All preoperational tests have been successfully completed.

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- iii. Equipment successfully meets the operational contract guarantees necessary to achieve the emission levels described in subparagraphs 10(d)(iv) and 10(d)(v) below.
 - iv. The equipment shall be operational and demonstrate its ability to operate at a mercury emission level of less than or equal to 1.61 lb/trillion Btu over a continuous four (4) hour period while the generating unit is operating at or above 95% of its design load (850 MWnet).
 - v. The equipment shall also demonstrate its ability to operate at a mercury removal level of less than or equal to 1.70 lb/trillion Btu over a continuous 120-hour period while the generating unit is operating at or above 80% of its design load (850 MWnet).
- e) Continuous Emissions Monitoring System
- i. Continuous emission monitoring systems (CEMS) are operational and demonstrate the capability of monitoring the emissions to satisfy the parameters in Paragraph 10.

APPENDIX A

****Highly Confidential in its Entirety****

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LARGE CAPITAL PROJECT EXPENDITURE AND BUDGET ANALYSIS

Schedule BAM-2

latan Unit 1, latan Common, latan Unit 2, and Plum Point

| FERC Code | Project 100% Budget | Allocation Before Common | After Common Allocation | Empire's Share of Project Budget | Adj. to Proect Budget + EDE Only Exp. | Total Empire Projected Exp. Excluding AFUDC | Prorated AFUDC Only | Total Empire Projected Exp. Including AFUDC |
|-----------------------------------|-------------------------|--------------------------|-------------------------|----------------------------------|---------------------------------------|---|----------------------|---|
| latan 1 AQCS | \$ 484,123,692 | 100.0% | \$ 370,014,441 | \$ 44,401,733 | \$ 845,157 | \$ 45,246,890 | \$ 3,265,205 | \$ 48,512,095 |
| 311 | \$ 50,000,000 | 10.3% | \$ 38,111,487 | \$ 4,573,378 | \$ 87,051 | \$ 4,660,430 | \$ 336,316 | \$ 4,996,746 |
| 312 | \$ 300,000,000 | 62.0% | \$ 229,408,953 | \$ 27,529,074 | \$ 523,997 | \$ 28,053,072 | \$ 2,024,427 | \$ 30,077,499 |
| 315 | \$ 75,000,000 | 15.5% | \$ 57,352,238 | \$ 6,882,269 | \$ 130,999 | \$ 7,013,268 | \$ 506,107 | \$ 7,519,375 |
| 316 | \$ 59,123,692 | 12.2% | \$ 45,141,762 | \$ 5,417,011 | \$ 103,109 | \$ 5,520,121 | \$ 398,355 | \$ 5,918,476 |
| latan Common (from Unit 1) | | 100.0% | \$ 114,109,251 | \$ 13,693,110 | \$ - | \$ 13,693,110 | \$ 4,737 | \$ 13,697,847 |
| 311 | | 5.0% | \$ 5,705,463 | \$ 684,656 | \$ - | \$ 684,656 | \$ 237 | \$ 684,892 |
| 312 | | 80.0% | \$ 91,287,401 | \$ 10,954,488 | \$ - | \$ 10,954,488 | \$ 3,789 | \$ 10,958,278 |
| 315 | | 7.5% | \$ 8,558,194 | \$ 1,026,983 | \$ - | \$ 1,026,983 | \$ 355 | \$ 1,027,339 |
| 316 | | 7.5% | \$ 8,558,194 | \$ 1,026,983 | \$ - | \$ 1,026,983 | \$ 355 | \$ 1,027,339 |
| latan Common (from Unit 2) | | 100.0% | \$ 268,855,749 | \$ 32,262,690 | \$ 115,084 | \$ 32,377,774 | \$ 812,573 | \$ 33,190,347 |
| 311 | | 10.0% | \$ 26,885,575 | \$ 3,226,269 | \$ 11,508 | \$ 3,237,777 | \$ 81,257 | \$ 3,319,035 |
| 312 | | 70.0% | \$ 188,199,024 | \$ 22,583,883 | \$ 80,559 | \$ 22,664,442 | \$ 568,801 | \$ 23,233,243 |
| 315 | | 10.0% | \$ 26,885,575 | \$ 3,226,269 | \$ 11,508 | \$ 3,237,777 | \$ 81,257 | \$ 3,319,035 |
| 316 | | 10.0% | \$ 26,885,575 | \$ 3,226,269 | \$ 11,508 | \$ 3,237,777 | \$ 81,257 | \$ 3,319,035 |
| latan 2 | \$ 1,988,213,128 | 100.0% | \$ 1,719,357,379 | \$ 206,322,885 | \$ 6,299,341 | \$ 212,622,226 | \$ 23,246,536 | \$ 235,868,763 |
| 311 | \$ 211,213,128 | 10.6% | \$ 182,251,882 | \$ 21,870,226 | \$ 667,730 | \$ 22,537,956 | \$ 2,464,133 | \$ 25,002,089 |
| 312 | \$ 943,000,000 | 47.4% | \$ 814,975,398 | \$ 97,797,048 | \$ 2,985,888 | \$ 100,782,935 | \$ 11,018,858 | \$ 111,801,793 |
| 314 | \$ 156,500,000 | 7.9% | \$ 135,829,233 | \$ 16,299,508 | \$ 497,648 | \$ 16,797,156 | \$ 1,836,476 | \$ 18,633,632 |
| 315 | \$ 156,500,000 | 7.9% | \$ 135,829,233 | \$ 16,299,508 | \$ 497,648 | \$ 16,797,156 | \$ 1,836,476 | \$ 18,633,632 |
| 316 | \$ 521,000,000 | 26.2% | \$ 450,471,633 | \$ 54,056,596 | \$ 1,650,427 | \$ 55,707,023 | \$ 6,090,592 | \$ 61,797,616 |
| 319 | | | | | | | | |
| Plum Point | \$ 1,078,421,000 | 100.0% | \$ 1,078,421,000 | \$ 81,097,259 | \$ 6,902,741 | \$ 88,000,000 | \$ 17,097,322 | \$ 105,097,322 |
| 311 | \$ 325,000,000 | 30.1% | \$ 324,604,721 | \$ 24,410,275 | \$ 2,077,725 | \$ 26,488,000 | \$ 5,146,294 | \$ 31,634,294 |
| 312 | \$ 500,000,000 | 46.4% | \$ 500,387,344 | \$ 37,629,128 | \$ 3,202,872 | \$ 40,832,000 | \$ 7,933,157 | \$ 48,765,157 |
| 314 | \$ 108,000,000 | 10.0% | \$ 107,842,100 | \$ 8,109,726 | \$ 690,274 | \$ 8,800,000 | \$ 1,709,732 | \$ 10,509,732 |
| 315 | \$ 75,000,000 | 7.0% | \$ 75,489,470 | \$ 5,676,808 | \$ 483,192 | \$ 6,160,000 | \$ 1,196,813 | \$ 7,356,813 |
| 316 | \$ 70,421,000 | 6.5% | \$ 70,097,365 | \$ 5,271,322 | \$ 448,678 | \$ 5,720,000 | \$ 1,111,326 | \$ 6,831,326 |
| Column Totals | \$ 3,550,757,820 | | \$ 3,550,757,820 | \$ 377,777,678 | \$ 14,162,323 | \$ 391,940,001 | \$ 44,426,373 | \$ 436,366,373 |

| Empire FERC Totals | | CWIP Thru 06/30/2010 | Plant In Service Thru 06/30/2010 |
|--------------------|-----------------------|-----------------------|----------------------------------|
| | \$ 436,366,373 | \$ 345,725,052 | \$ 90,641,321 |
| 311 | \$ 65,637,056 | \$ 57,124,217 | \$ 8,512,839 |
| 312 | \$ 224,835,970 | \$ 163,576,785 | \$ 61,259,185 |
| 314 | \$ 29,143,364 | \$ 29,139,473 | \$ 3,891 |
| 315 | \$ 37,856,193 | \$ 26,696,247 | \$ 11,159,946 |
| 316 | \$ 78,893,790 | \$ 69,188,330 | \$ 9,705,460 |

(allocations estimated)

**Iatan Unit 2
Operating & Maintenance Adjustment**

| Acct | Ferc | Desc | 2011 Budget | |
|----------------------|------------|---|-------------|--------------------|
| 500000 Total | | 500 500000:Prod-Steam Oper-Supv & Enginr | ** | ** |
| 502001 Total | | 502 502001:Steam Oper-Boiler | ** | ** |
| 502002 Total | | 502 502002:Steam Oper-Fuel | ** | ** |
| 502004 Total | | 502 502004:Steam Oper-Water | ** | ** |
| 502010 Total | | 502 502010:Steam Oper-Solid By-Products | ** | ** |
| 502012 Total | | 502 502012:Steam Oper- Ash | ** | ** |
| 502013 Total | | 502 502013:Steam Oper- AQC | ** | ** |
| 502014 Total | | 502 502014:Steam Oper-Air Pollution Contr | ** | ** |
| 502015 Total | | 502 502015:Steam Oper-Water Pollution Con | ** | ** |
| 505007 Total | | 505 505007:Prod Elec Oper-Facilities | ** | ** |
| 505010 Total | | 505 505010:Prod Elec Oper-Turb/Gen | ** | ** |
| 506000 Total | | 506 506000:Misc Steam Power Operations | ** | ** |
| 509000 Total | | 509 509000:Prod Elec Oper-Allowances | ** | ** |
| 510000 Total | | 510 510000:Steam Power Maint-Supv & Engin | ** | ** |
| 511001 Total | | 511 511001:Steam Power Maint-Structure-Fa | ** | ** |
| 511002 Total | | 511 511002:Steam Power Maint-Struct-Fac-F | ** | ** |
| 512001 Total | | 512 512001:Boiler Plt Maint - FF Unload | ** | ** |
| 512002 Total | | 512 512002:Boiler Plt Maint - Stacker | ** | ** |
| 512003 Total | | 512 512003:Boiler Plt Maint - Coal Pile | ** | ** |
| 512004 Total | | 512 512004:Boiler Plt Maint - Ash | ** | ** |
| 512005 Total | | 512 512005:Boiler Plt Maint - Conveyor | ** | ** |
| 512006 Total | | 512 512006:Boiler Plt Maint - Fuel | ** | ** |
| 512007 Total | | 512 512007:Boiler Plt Maint - Air | ** | ** |
| 512008 Total | | 512 512008:Boiler Plt Maint - Water | ** | ** |
| 512010 Total | | 512 512010:Boiler Plt Maint - Cond Sys | ** | ** |
| 512011 Total | | 512 512011:Boiler Plt Maint - Furnace | ** | ** |
| 512012 Total | | 512 512012:Boiler Plt Maint - Aux Steam | ** | ** |
| 512013 Total | | 512 512013:Boiler Plt Maint - AQC | ** | ** |
| 512015 Total | | 512 512015:Boiler Plt Maint-Unclassifid E | ** | ** |
| 513001 Total | | 513 513001:Elec Plt Maint - FF Turb/Gen | ** | ** |
| 513002 Total | | 513 513002:Elec Plt Maint - Transfer FF | ** | ** |
| 513003 Total | | 513 513003:Elec Plt Maint - Aux Elec | ** | ** |
| 513006 Total | | 513 513006:Elec Plt Maint - Cooling | ** | ** |
| 514001 Total | | 514 514001:Misc Steam Plt - FF Comp Air | ** | ** |
| 557000 Total | | 557 557000:Prod-Other-Other Expenses | ** | ** |
| 408144 Total | | 408 408144:Payroll Taxes- Billed | ** | ** |
| 920000 Total | | 920 920000:A&G Labor Expense | ** | ** |
| 921000 Total | | 921 921000:A&G Exp-Oper-Office Exp | ** | ** |
| 926511 Total | | 926 926511:PR Tax, Pens & Bnfits on O&M | ** | ** |
| AQCS | AQC | | | |
| 506201 Total | | 506 Fuel Exp-Additives - Limestone | ** | ** |
| 506202 Total | | 506 Fuel Exp-Additives-Ammonia | ** | ** |
| 506203 Total | | 506 Fuel Exp-Additives-PAC | ** | ** |
| Total Adjustm | Tot | | | (3,362,652) |

Data from 2010-2014 Joint Owner Budget prepared by Kansas City Power & Light