

## 6.4

- Tabla 6.18 Proyectos donde se consideran todas las inversiones y los beneficios
- Tabla 6.19 Proyectos donde se consideran solamente las inversiones correspondientes a la generación hidroeléctrica sin tomarse en cuenta los beneficios secundarios.
- Tabla 6.20 Proyectos de acumulación por bombeo
- Tabla 6.21 Proyectos que nunca se han evaluado anteriormente

No existen proyectos que tengan topografía pobre e hidrología buena, por lo cual dicha Tabla no figuran en la relación anterior.

### 6.4 SELECCION DE LOS PROYECTOS QUE FORMARAN EL CATALOGO DE PROYECTOS HIDROELECTRICO NECESARIO PARA LA OPTIMIZACION

En la tabla 6.4 se pueden observar los proyectos de las cadenas óptimas ordenadas por FEC. Como la demanda del sistema en el año 2,000 se prevé que es de orden de los 10,000 MW, se considera que incluir en la optimización los 326 proyectos cuya potencia instalada promedia sumen los 58,300 MW constituye una carga de trabajo muy grande, que es necesario limitar. Por consiguiente, solo se considerarían proyectos que sumen aproximadamente 24.0, y que involucra a los primeros 71 proyectos de la Tabla 6.4.

En la Tabla 6.22 se encuentran listados los proyectos eliminados.

### 6.5 EL CATALOGO DE PROYECTOS PARA LA OPTIMIZACION

Para cada proyecto se ha simulado con la ayuda del Programa EVAL 15 potencias instaladas. Los proyectos con embalse se han considerado con caudal turbinado que varia entre  $0.25^* Q_M$  y  $3.75^* Q_m$  simulándose de esta manera desde una operación en base hasta punto.

Los proyectos a filo de agua se han considerado con caudal turbinado que varia desde  $0.25 \times q_m$  hasta  $1.5 Q_m$  simulando una operación en base con distintos factores de planta.

En la tabla 6.23 se puede observar las características de los proyectos para cada una de las potencias instaladas consideradas.





TABLA 6.1  
 =====  
 PROYECTOS ANALIZADOS  
 =====

CONT. 3/6

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*****
*
* N PROYECTO ALT LATIT LONG. AR.CAP. COT.VAL. QM Q10 Q1000 CURVA HI TO
* TOT GR MI GR MI KMC MSNM MC/S
*
*****
*
* 201 INA130 2 13 33 70 6 6226.0 574.0 335.00 1245.60 2844.1 230306 0 1 *
* 202 INA140 2 12 32 70 9 6270.0 550.0 336.00 1250.60 2855.5 230306 0 1 *
* 203 INA150 4 13 29 70 12 6350.0 499.0 105.00 1259.60 2876.1 230306 0 1 *
* 204 INA170 3 15 23 72 18 11410.0 402.0 527.00 1739.60 3972.2 230306 0 1 *
* 205 INA180 3 15 19 72 18 11550.0 390.0 544.00 1751.00 3998.1 230306 0 1 *
* 206 INA200 4 15 12 72 23 16707.0 335.0 857.00 2124.40 4850.7 230306 0 1 *
* 207 INA30 8 14 11 69 41 1380.0 1595.0 63.30 494.10 1128.2 230306 0 0 *
* 208 INA40 2 14 6 69 14 1699.0 1395.0 81.00 566.00 1292.5 230306 0 0 *
* 209 INA65 1 13 54 69 31 3176.0 1002.0 159.00 838.20 1913.9 230306 0 0 *
* 210 INA80 1 13 51 69 44 3299.0 866.0 167.00 857.80 1958.6 230306 0 0 *
* 211 INA85 1 13 43 69 51 4994.0 765.0 250.00 1097.20 2505.3 230306 0 0 *
* 212 INA88 1 13 38 69 58 5850.0 620.0 304.00 1202.10 2744.8 230306 0 0 *
* 213 INA90 2 13 37 70 2 6084.0 593.0 323.00 1229.30 2807.0 230306 0 0 *
* 214 JEPE10 4 7 19 77 5 3554.0 475.0 109.45 897.20 2048.6 230306 0 0 *
* 215 JEQUE10 2 7 13 78 24 706.0 2540.0 4.63 233.70 680.6 200901 1 1 *
* 216 JEQUE20 4 7 13 78 24 706.0 2540.0 4.63 233.70 680.6 200901 1 1 *
* 217 JEQUE30 3 7 13 78 24 206.0 2540.0 4.63 109.80 319.8 201203 1 1 *
* 218 JEQUE40 9 7 13 78 48 1022.0 920.0 8.85 288.50 839.9 201204 1 1 *
* 219 JEQUE50 9 7 13 78 57 2687.0 665.0 24.30 483.10 1406.8 201204 1 1 *
* 220 JEQUE60 3 7 14 79 3 3212.0 500.0 21.22 528.60 1539.3 201401 1 1 *
* 221 JEQUE70 1 7 14 79 12 3614.0 297.0 20.41 560.60 1632.2 201399 1 1 *
* 222 JORGE10 3 7 27 77 33 3926.0 1965.0 31.93 755.60 2009.2 220304 1 1 *
* 223 JOSE10 4 14 33 74 17 714.0 3235.0 7.58 236.50 620.3 203805 1 1 *
* 224 JOSE20 1 14 33 74 17 714.0 3235.0 7.58 236.50 620.3 203805 1 1 *
* 225 LAMB10 3 6 33 78 45 369.0 2075.0 10.60 158.70 462.1 220601 1 1 *
* 226 LAMB15 1 6 34 78 52 637.0 1600.0 12.81 220.20 641.0 201203 1 1 *
* 227 LAMB20 6 6 35 78 55 773.0 1500.0 13.60 246.30 717.1 201203 1 1 *
* 228 LAMB30 4 6 37 78 59 1013.0 1210.0 16.00 287.00 835.8 201203 1 1 *
* 229 LAMB40 1 6 39 79 5 1602.0 1000.0 22.19 368.80 1074.0 201202 1 1 *
* 230 LAMB50 1 6 38 79 8 1812.0 825.0 23.86 393.80 1146.7 201202 1 1 *
* 231 LLAU10 4 6 42 18 31 598.0 2500.0 8.36 274.60 730.1 220208 0 1 *
* 232 LOCUM10 1 17 10 69 59 213.0 4380.0 0.46 85.50 194.5 210101 1 1 *
* 233 LOCUM20 1 17 22 70 19 1564.0 2720.0 1.60 357.60 813.5 210101 1 1 *
* 234 MAJES10 2 15 49 71 53 98.0 3479.0 0.70 51.10 134.0 204601 1 1 *
* 235 MAJES20 2 15 49 71 53 88.0 3479.0 0.70 46.70 122.4 204601 1 1 *
* 236 MALA10 1 12 19 76 15 1503.0 1575.0 15.92 392.00 1027.9 203199 1 1 *
* 237 MALA20 1 12 19 76 15 1503.0 1575.0 16.00 392.00 1027.9 203199 1 1 *
* 238 MAN105 2 12 29 74 49 18430.0 2687.0 186.90 1861.40 4243.9 230997 1 1 *
* 239 MAN130 6 13 48 74 28 19060.0 2226.0 202.50 1893.40 4316.9 230916 1 1 *
* 240 MAN140 4 12 48 74 18 26375.0 2110.0 251.00 2225.70 5074.5 230997 1 1 *
* 241 MAN170 8 12 37 74 20 26890.0 1973.0 266.60 2246.80 5122.7 230997 1 1 *
* 242 MAN180 8 12 34 74 23 26950.0 1920.0 267.60 2249.30 5128.3 230916 1 1 *
* 243 MAN190 6 12 30 74 25 27290.0 1826.0 276.60 2263.00 5159.7 230916 1 1 *
* 244 MAN190T 6 12 30 74 25 27290.0 1826.0 276.60 2263.00 5159.7 230916 1 1 *
* 245 MAN191 2 12 24 74 15 1582.0 1165.0 317.88 450.30 1026.8 230923 1 1 *
* 246 MAN20 2 11 30 75 56 5958.0 3720.0 51.30 1012.30 2308.0 230931 1 1 *
* 247 MAN210 8 12 26 74 31 27530.0 1724.0 284.10 2272.70 5181.8 230916 1 1 *
* 248 MAN210T 2 12 26 74 31 27530.0 1724.0 284.10 2272.70 5181.8 230916 1 1 *
* 249 MAN211 2 12 24 74 15 1562.0 1165.0 317.88 446.60 1018.3 230923 1 1 *
* 250 MAN220 8 12 22 74 34 27690.0 1676.0 289.60 2279.10 5196.4 230916 1 1 *
* 251 MAN230 7 12 21 74 37 27705.0 1624.0 290.00 2279.70 5197.8 230916 1 1 *
* 252 MAN240 8 12 19 74 30 27978.0 1532.0 295.00 2290.60 5222.7 230916 1 1 *
* 253 MAN250 8 12 16 74 43 29105.0 1351.0 314.50 2334.90 5323.7 230916 1 1 *
* 254 MAN260 12 12 9 74 42 29295.0 1201.0 318.00 2342.30 5340.5 230909 0 1 *
* 255 MAN270 4 12 2 74 41 30525.0 1076.0 339.50 2389.30 5447.5 230909 0 1 *
* 256 MAN290 4 12 1 74 28 32155.0 902.0 369.90 2449.70 5585.3 230909 0 1 *
* 257 MAN310 8 12 8 74 21 33005.0 280.0 385.90 2480.50 5655.4 230925 0 1 *
* 258 MAN320 4 12 13 74 19 33335.0 680.0 390.50 2492.30 5682.3 230909 0 1 *
* 259 MAN340 6 12 19 74 7 34205.0 505.0 408.50 2523.00 5752.5 230996 0 1 *
* 260 MAN40 2 11 39 75 47 7339.0 3593.0 21.80 1138.90 2596.7 230931 1 1 *
* 261 MAN50 6 11 47 75 41 8386.0 3490.0 83.80 1226.50 2796.3 230905 1 1 *
* 262 MAN60 6 11 47 75 33 8862.0 3418.0 88.10 1264.30 2882.6 230905 1 1 *
* 263 MAN70 4 11 49 75 29 9190.0 3368.0 90.80 1289.70 2940.5 230909 1 1 *
* 264 MAN80 12 12 20 75 8 10090.0 2992.0 124.50 1356.90 3093.8 230909 1 1 *
* 265 MAN90 4 12 30 74 57 16640.0 2842.0 166.60 1766.70 4028.0 230997 1 1 *
* 266 MANTA10 4 8 36 77 53 563.0 2100.0 10.60 204.70 596.2 201714 1 1 *
* 267 MARA110 4 9 28 76 41 5285.0 2736.0 91.23 872.20 2319.3 221809 1 1 *
* 268 MARA120 6 9 24 76 47 5470.0 2690.0 94.35 886.60 2357.5 221809 1 1 *
* 269 MARA130 12 9 19 76 44 5619.0 2625.0 94.36 897.90 2387.7 221809 1 1 *
* 270 MARA140 4 9 17 76 43 5900.0 2437.0 101.47 918.80 2443.3 221809 1 1 *
* 271 MARA150 6 9 11 76 45 6127.0 2366.0 105.06 935.30 2487.0 221809 1 1 *
* 272 MARA160 6 9 8 76 47 6254.0 2288.0 106.96 944.30 2511.0 230304 1 1 *
* 273 MARA180 6 9 5 76 54 6336.0 2191.0 108.22 950.10 2526.3 230304 1 1 *
* 274 MARA190 6 9 4 76 57 6412.0 2090.0 109.38 955.40 2540.4 230304 0 1 *
* 275 MARA200 3 8 59 77 4 9488.0 2004.0 160.88 1142.80 3038.9 230304 0 1 *
* 276 MARA210 3 8 49 77 11 10667.0 1893.0 181.72 1204.00 3201.6 230304 0 1 *
* 277 MARA230 6 8 36 77 17 12972.0 1772.0 217.93 1311.80 3488.3 230304 0 1 *
* 278 MARA240 6 8 32 77 19 13380.0 1727.0 284.27 1329.50 3535.4 230306 0 1 *
* 279 MARA250 9 8 30 77 21 13844.0 1701.0 231.41 1349.20 3587.8 230306 0 1 *
* 280 MARA260 6 8 24 77 26 14688.0 1652.0 243.92 1384.00 3680.1 230306 0 1 *
* 281 MARA290 9 8 16 77 31 15700.0 1553.0 259.21 1423.90 3786.3 230306 0 1 *
* 282 MARA300 8 8 7 77 38 16280.0 1424.0 267.67 1446.00 3845.0 230306 0 1 *
* 283 MARA320 9 7 52 77 37 17187.0 1260.0 281.03 1479.50 3934.1 230306 0 1 *
* 284 MARA330 9 7 47 77 39 17443.0 1205.0 284.60 1488.70 3958.6 230306 0 1 *
* 285 MARA340 9 7 31 77 41 17664.0 1165.0 287.62 1496.60 3979.6 230306 0 1 *
* 286 MARA350 4 7 34 77 42 18097.0 1105.0 293.49 1511.90 4020.3 230306 0 1 *
* 287 MARA370 3 7 24 77 47 19207.0 1060.0 309.73 1549.90 4121.4 230306 0 1 *
* 288 MARA380 4 7 18 77 49 24758.0 1035.0 322.81 1720.30 4574.3 230306 0 1 *
* 289 MARA390 9 7 7 77 56 25591.0 875.0 367.34 1743.40 4636.0 230306 0 1 *
* 290 MARA400 8 7 1 77 58 26107.0 940.0 375.43 1757.50 4673.5 230306 0 1 *
* 291 MARA410 6 6 51 78 0 27231.0 840.0 391.61 1787.60 4753.3 230306 0 1 *
* 292 MARA420 2 6 42 78 2 27800.0 770.0 398.63 1802.40 4792.8 230306 0 1 *
* 293 MARA430 3 6 35 78 7 29043.0 740.0 402.40 1834.20 4877.3 230306 0 1 *
* 294 MARA440 3 6 22 78 22 29804.0 640.0 438.06 1853.10 4927.7 230306 0 1 *
* 295 MARA450 2 6 11 78 25 30489.0 550.0 470.14 1869.90 4972.3 230306 0 1 *
* 296 MARA460 3 6 2 78 37 34649.0 500.0 493.67 1966.40 5228.9 230306 0 0 *
* 297 MARA470 3 5 54 78 41 35175.0 450.0 572.90 1978.00 5259.8 230306 0 1 *
* 298 MARA50 6 9 58 76 41 1002.0 3320.0 17.66 369.20 981.7 230501 1 1 *
* 299 MARA500 6 5 32 78 32 54069.0 320.0 958.00 3744.20 8549.2 230306 0 1 *
* 300 MARA520 6 5 12 78 28 55009.0 297.0 965.00 3773.50 8616.1 230306 0 0 *
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T A B L A 6.1  
 =====  
 P R O Y E C T O S A N A L I Z A D O S  
 =====

- CONT. . 6/6

* N	PROYECTO	ALT TOT	LATIT GR MI	LONG. GR MI	AR.CAP. KMC	COT.VAL. MSNM	QM MC/S	Q10	Q1000	CURVA ENER	HI	TO
* 501	URUB190	8	12 45	72 40	12546.0	945.0	178.00	1524.80	3476.4	230306	0	1 *
* 502	URUB200	2	12 43	72 31	12828.0	800.0	179.20	1542.80	3517.5	230306	0	1 *
* 503	URUB210	2	12 39	72 38	13070.0	720.0	182.20	1558.10	3552.4	230306	0	1 *
* 504	URUB220	1	12 36	72 42	16546.0	685.0	230.00	1761.50	4016.3	230306	0	1 *
* 505	URUB230	2	12 35	72 46	16825.0	660.0	235.40	1776.70	4051.0	230306	0	1 *
* 506	URUB250	3	12 38	72 51	16880.0	655.0	236.40	1779.70	4057.8	230306	0	1 *
* 507	URUB260	15	12 38	72 58	19774.0	610.0	289.30	1928.90	4397.9	230306	0	0 *
* 508	URUB280	6	12 37	73 3	21141.0	560.0	318.00	1994.80	4548.2	230306	0	0 *
* 509	URUB290	6	12 32	73 2	29660.0	540.0	413.90	2356.40	5372.5	230306	0	0 *
* 510	URUB310	5	12 28	72 59	32562.0	510.0	474.10	2464.50	5619.0	230306	0	0 *
* 511	URUB320	8	12 14	72 51	39368.0	450.0	624.20	2696.10	6147.2	230306	0	0 *
* 512	URUB35	2	13 12	72 32	9462.0	2360.0	124.20	1310.40	2987.7	230499	1	1 *
* 513	URUB88	4	13 10	72 35	10761.0	1790.0	141.30	1429.80	3259.9	230499	1	1 *
* 514	URUB90	3	13 7	72 36	11984.0	1450.0	149.80	1488.10	3392.9	230306	1	1 *
* 515	URUM15	12	12 53	74 36	2536.0	2835.0	21.20	608.20	1386.7	230996	1	1 *
* 516	URUM20	4	12 55	74 20	3155.0	2235.0	23.04	695.70	1586.2	230996	1	1 *
* 517	UTC30	3	6 5	77 54	2503.0	1160.0	27.48	603.00	1603.4	230306	0	0 *
* 518	UTC50	2	5 58	77 58	3020.0	995.0	30.66	663.30	1763.8	230306	0	0 *
* 519	UTC60	1	5 55	78 0	3380.0	850.0	46.24	701.70	1866.0	230306	0	0 *
* 520	UTC70	1	5 53	78 11	4911.0	485.0	116.18	842.20	2239.4	230306	0	0 *
* 521	VELL37	10	14 24	71 54	2110.0	3570.0	20.73	541.90	1235.5	230501	1	1 *
* 522	VELL50	2	14 17	71 52	2310.0	3350.0	23.29	573.70	1308.1	230501	1	1 *
* 523	VELL70	2	14 10	71 51	2935.0	3205.0	30.38	665.60	1517.6	221809	1	1 *
* 524	VELL75	1	14 7	71 49	3067.0	3108.0	31.66	683.80	1599.0	221809	1	1 *
* 525	VELL90	4	14 1	71 50	3210.0	2957.0	33.06	703.00	1602.9	221809	1	1 *
* 526	VELL95	4	13 58	71 53	3275.0	2840.0	34.24	711.60	1622.6	221809	1	1 *
* 527	VIL10	12	12 33	75 13	1465.0	3280.0	21.60	428.30	976.5	230996	1	1 *
* 528	VIL20	4	12 24	75 9	3066.0	3005.0	37.20	683.70	1598.7	230996	1	1 *
* 529	VILCA120	6	14 3	72 36	2283.0	2730.0	46.11	569.50	1298.5	221809	1	1 *
* 530	VILCA160	2	13 58	72 33	2574.0	2570.0	51.50	613.80	1399.5	221809	1	1 *
* 531	VILCA170	9	13 49	72 29	2700.0	2330.0	149.44	632.30	1441.6	221809	1	1 *
* 532	VILCA175	1	13 42	72 22	3860.0	2175.0	71.50	785.60	1791.2	230304	1	1 *
* 533	VILCA70	9	14 14	72 35	1263.0	3195.0	26.43	388.30	885.3	221809	1	1 *
* 534	VIZCA10	6	9 51	76 52	803.0	3315.0	14.33	325.70	866.1	230501	1	1 *
* 535	VNOTA140	1	13 40	71 39	6482.0	3075.0	104.00	1062.00	2421.4	230499	1	1 *
* 536	VNOTA180	4	13 34	71 43	7062.0	3045.0	109.00	1114.60	2541.3	230499	1	1 *
* 537	VNOTA200	4	13 30	72 45	7133.0	3010.0	109.80	1120.90	2555.6	230499	1	1 *
* 538	VNOTA220	6	13 25	72 50	7428.0	2960.0	114.10	1146.60	2614.2	230499	1	1 *
* 539	VNOTA295	15	13 14	73 14	8103.0	2810.0	131.00	1203.40	2743.8	230499	1	1 *
* 540	VNOTA295B	4	13 14	73 14	8103.0	2810.0	131.00	1203.40	2743.8	230499	1	1 *
* 541	VNOTA60	2	14 0	71 29	5476.0	3385.0	91.10	964.40	2198.9	221809	1	1 *
* 542	VNOTA90	2	13 51	71 32	5852.0	3200.0	94.40	1001.90	2284.4	221809	1	1 *
* 543	YANA10	8	8 57	77 19	1344.0	2251.0	23.31	434.20	1154.5	230304	1	1 *
* 544	YANA20	4	8 56	77 13	2141.0	2004.0	36.40	556.30	1479.2	230304	1	1 *
* 545	YAUCA10	2	15 11	73 53	963.0	1850.0	5.48	291.00	763.2	203805	1	1 *
* 546	YAUCA20	2	15 14	74 6	1614.0	1320.0	7.40	410.60	1076.8	203799	1	1 *
* 547	YAUCA30	1	15 14	74 6	1614.0	1320.0	7.40	410.60	1076.8	203799	1	1 *
* 548	YAUCA40	1	15 14	74 6	1614.0	1320.0	7.40	410.60	1076.8	203799	1	1 *

NUMERO TOTAL DE PROYECTOS : 548

NUMERO TOTAL DE ALTERNATIVAS ANALIZADAS : 2192





LISTADO DE LOS PROYECTOS HIDROELECTRICOS  
ORDENADO ALFABETICAMENTE CON 0.00 MW \$ PI \$= 5000.00 MW

RANK	PROYECTO	ALT.	QM (M**3/S)	HN (M)	PI (MW)	PG (MW)	FP (GWH)	FS (GWH)	FT (GWH)	INV (10**6 \$)	FFC (\$/MWH)	FFC1 (-)	KFSP (\$/KW)	PROYECTOS CONDICIONANTES
111	ICATO	1	23.6	179.9	35.4	35.4	227.2	27.7	254.9	148.7	21.584	1.648	4200.6	CHALOTO
112	ICHU20	1	13.2	352.4	38.8	18.5	122.5	84.5	207.0	94.0	66.918	1.164	2422.7	
113	INA140	1	336.0	39.6	110.9	8.4	83.5	603.6	687.1	75.1	22.854	0.295	677.2	
114	INA200	4	857.0	189.6	1355.2	995.8	9877.6	653.2	10530.8	806.8	9.275	0.221	595.3	
115	INA30	8	63.3	495.9	261.8	228.6	1577.8	274.0	1851.8	455.0	31.125	0.690	1738.0	
116	INA65	1	159.0	130.1	172.6	95.1	912.8	317.4	1230.2	189.1	20.698	0.433	1095.6	
117	INA80	1	167.0	119.1	165.9	55.5	553.5	517.8	1071.3	151.9	21.939	0.387	915.6	
118	INA85	1	250.0	88.4	184.3	56.9	574.0	602.8	1176.8	179.8	24.096	0.416	975.6	
119	INA90	2	323.4	149.1	402.1	163.7	1644.3	1058.9	2703.2	290.9	15.697	0.298	723.5	
120	JEPE10	1	123.0	53.3	54.7	9.0	89.7	249.4	339.1	85.4	46.724	0.679	1561.2	
121	JEQUE10	2	8.5	674.5	47.8	28.6	177.7	100.2	277.9	73.8	37.981	0.701	1543.9	
122	JEQUE20	4	8.5	360.8	25.6	15.7	97.1	57.9	155.0	46.4	39.823	0.801	1812.5	JFQUF10
123	JEQUE30	1	8.5	359.7	25.5	16.2	100.3	59.2	159.5	68.1	46.514	1.155	2670.6	JFQUF10
124	JEQUE40	3	17.2	171.0	24.5	12.6	92.8	41.0	133.8	114.7	64.799	2.215	4681.6	JFQUF10
125	JEQUE50	3	32.5	196.3	53.2	30.7	247.4	67.5	314.9	189.2	60.598	1.596	3556.4	JFQUF10
126	JEQUE60	1	33.0	144.9	39.9	18.4	139.7	69.6	209.3	133.7	60.493	1.629	3350.9	JFQUF10
127	JEQUE70	1	33.5	105.1	29.4	12.7	121.7	43.1	164.8	14.4	11.826	0.229	489.8	AGRICULTURA
128	JORGE10	1	31.8	332.7	88.2	44.3	274.9	376.6	651.5	112.3	16.350	0.490	1273.2	CRISIS
129	LAMB10	1	17.2	346.7	49.8	0.0	0.0	315.8	315.8	37.9	28.166	0.326	761.0	
130	LAMB20	1	30.2	269.3	67.9	41.1	291.2	135.2	426.4	119.2	38.982	0.757	1755.5	
131	LAMB30	1	34.2	394.7	112.6	32.1	215.7	427.4	643.1	171.9	46.943	0.701	1526.6	
132	LAMB50	1	41.1	422.7	144.8	30.1	186.6	659.1	845.7	137.4	31.224	0.430	948.9	
133	LLAU10	2	8.4	332.9	23.2	22.5	152.0	22.5	174.5	345.4	248.176	5.657	14887.9	
134	LLOCUM10	1	32.5	1355.9	367.5	367.4	3218.7	0.0	3218.7	1357.6	73.018	1.853	3694.1	
135	LLOCUM20	1	4.6	372.1	14.3	14.3	122.5	2.5	125.0	32.0	30.357	0.762	2237.8	
136	MAJF510	1	34.0	745.6	211.4	113.6	727.5	625.9	1353.4	190.6	32.301	0.384	901.6	APU10
137	MAJES20	1	35.0	981.0	286.4	149.8	939.0	879.4	1818.4	247.4	29.482	0.370	863.8	APU10
138	MAL110	1	16.0	584.5	78.0	5.8	35.9	309.7	345.6	142.1	82.990	0.934	1821.8	
139	MAL20	1	16.0	539.6	72.0	5.3	33.2	285.9	319.1	106.7	71.075	0.800	1481.9	
140	MAN105	1	154.9	136.3	176.1	78.9	791.0	319.4	1110.4	194.0	23.931	0.474	1101.6	
141	MAN130	2	74.5	88.0	54.7	20.1	199.8	124.5	324.3	78.9	35.333	0.647	1442.4	
142	MAN140	4	123.0	110.0	112.8	70.1	703.5	91.0	794.5	168.8	26.440	0.596	1496.5	
143	MAN170	8	138.6	120.6	139.4	64.6	648.5	239.3	887.8	160.1	24.457	0.491	1148.5	
144	MAN190	2	148.6	129.6	160.7	59.5	593.5	360.9	954.4	137.5	20.833	0.383	855.6	
145	MAN210	5	156.1	89.9	117.1	39.9	398.4	290.9	689.3	104.0	22.441	0.400	888.1	
146	MAN230	2	162.0	147.3	199.0	85.7	685.3	486.8	1172.1	144.9	18.305	0.328	728.1	
147	MAN250	1	282.5	184.4	434.4	179.1	1791.5	848.1	2639.6	319.2	16.901	0.324	734.8	
148	MAN260	3	286.0	132.2	315.2	111.6	1113.5	803.8	1917.3	245.2	18.981	0.343	777.9	
149	MAN270	2	307.5	111.3	285.5	103.0	1011.5	725.8	1737.3	190.1	16.228	0.293	665.8	
150	MAN290	1	337.9	150.1	423.1	194.3	1943.4	796.0	2739.4	346.7	17.367	0.346	819.4	
151	MAN310	1	353.9	110.0	324.6	68.7	689.7	964.5	1654.2	265.8	26.602	0.405	818.9	
152	MAN320	2	358.5	88.3	263.9	95.4	945.0	663.0	1608.0	204.5	18.790	0.341	774.9	
153	MAN340	5	376.4	114.6	359.8	103.0	1022.7	1023.8	2046.5	297.1	22.708	0.381	825.7	
154	MAN60	2	56.1	64.0	29.9	8.8	87.6	97.3	184.9	41.3	35.531	0.601	1381.3	
155	MAN70	2	58.8	44.3	21.7	8.4	85.0	49.1	134.1	37.0	39.578	0.742	1705.1	
156	MAN80	3	92.5	87.8	67.7	24.7	245.9	167.5	413.4	120.8	42.982	0.784	1784.3	
157	MAN90	4	134.6	130.9	145.9	76.0	763.6	209.7	973.3	271.6	36.688	0.769	1848.9	
158	MANTA10	4	9.8	954.6	77.9	12.7	79.0	344.6	423.6	92.4	43.140	0.563	1186.1	
159	MARA120	2	93.6	104.4	81.5	20.5	206.5	236.9	443.4	88.5	31.925	0.515	1085.9	
160	MARA130	4	100.2	220.2	184.0	39.9	275.3	708.0	983.3	183.2	34.152	0.478	995.7	
161	MARA150	1	104.0	61.8	53.6	8.8	89.3	197.1	286.4	49.4	30.872	0.443	921.6	
162	MARA160	1	107.3	68.3	61.1	12.6	125.8	272.8	398.6	70.6	31.569	0.485	1155.5	
163	MARA180	5	109.4	176.3	160.9	46.1	349.4	699.8	1049.2	120.8	20.270	0.316	750.8	
164	MARA200	1	162.0	75.1	101.4	26.2	265.4	398.5	663.9	75.1	18.952	0.310	740.6	
165	MARA210	1	211.0	97.2	171.0	64.4	645.1	541.2	1186.3	155.3	20.018	0.368	914.0	
166	MARA230	2	222.6	106.1	196.9	58.3	581.0	729.4	1310.4	162.6	20.168	0.342	825.8	
167	MARA250	2	244.7	61.6	125.6	12.4	126.2	652.3	778.5	97.3	25.241	0.337	774.7	
168	MARA290	3	262.0	130.2	284.6	117.4	1168.1	746.6	1914.7	211.5	16.092	0.306	743.1	
169	MARA300	2	269.0	113.1	253.7	51.4	515.1	1059.4	1574.5	178.1	19.999	0.305	702.0	
170	MARA320	3	281.8	144.1	338.7	102.3	1026.6	1127.2	2153.8	267.1	19.702	0.337	788.6	
171	MARA350	4	294.7	136.2	334.7	146.7	1472.0	820.8	2292.8	293.6	18.297	0.356	877.2	
172	MARA370	1	338.0	39.5	111.4	11.4	114.4	575.9	690.3	86.3	25.147	0.337	774.7	
173	MARA400	3	645.9	105.8	569.7	182.6	1822.0	1831.1	3653.1	339.2	14.532	0.253	595.4	
174	MARA410	2	360.6	88.1	265.0	73.8	732.1	934.2	1666.3	207.2	20.270	0.337	781.9	
175	MARA440	3	428.8	176.0	629.4	397.3	3980.5	553.4	4533.9	438.1	12.071	0.273	696.1	
176	MARA460	2	463.9	123.2	476.5	283.7	2847.1	523.0	3370.1	521.7	19.685	0.435	1094.9	
177	MARA50	3	32.4	346.2	93.4	52.3	352.1	162.7	514.8	227.9	61.667	1.148	2440.0	
178	MARA500	3	893.7	158.5	1181.3	855.0	8537.0	603.5	9140.5	657.8	8.730	0.207	556.8	
179	MARA570	5	2177.0	110.7	2009.3	1673.3	16733.2	62.3	16795.5	1307.3	9.147	0.229	650.6	
180	MARA80	4	76.3	249.6	158.8	103.1	787.8	207.7	995.5	448.7	59.030	1.220	2825.6	
181	MARCA40	1	32.4	156.9	42.4	16.7	167.4	115.1	282.5	248.6	129.631	2.428	5963.2	
182	MARCA50	4	51.0	434.1	184.7	151.2	1088.7	217.1	1305.8	403.8	39.559	0.868	2186.2	
183	MARCA70	2	64.0	179.9	96.0	7.4	46.1	548.9	595.0	138.5	50.690	0.628	1442.7	
184	MAY050	1	351.0	97.7	285.9	83.1	829.7	978.9	1808.6	555.7	49.411	0.834	1943.7	
185	MAY060	1	365.0	75.3	229.3	41.5	418.5	1003.4	1421.9	216.5	27.594	0.411	944.2	
186	MAY065	3	391.0	172.5	562.4	166.7	1279.3	2218.4	3497.7	601.4	29.534	0.464	1069.3	
187	MAY070	2	405.0	105.4	355.8	82.9	828.9	1386.0	2214.9	344.9	26.583	0.421	969.4	
188	MO10	1	16.6	2140.5	296.3	199.5	1239.8	574.0	1813.8	221.3	17.004	0.328	746.9	
189	MUCHE10	3	5.8	512.3	73.5	41.9	265.6	118.7	384.3	163.7	49.859	0.915	2227.2	
190	MUCHE20	3	5.8	582.8	28.3	1.3	7.8	117.9	125.7	50.0	87.871	0.951	1766.3	
191	MUCHE30	3	9.9	216.5	17.8	7.3	51.4	45.5	96.9	143.7	168.583	2.838	8073.0	
192	OCONA05	1	19.6	351.0	57.4	21.3	155.8	100.2	255.0	236.4	134.648	2.214	4118.5	
193	OCONA15	1	20.0	772.3	128.8	69.8	464.5	176.6	641.1	312.3	66.254	1.218	2424.7	
194	OCONA35	3	37.0	500.4	154.4	57.3	395.0	374.9	769.9	397.6	80.080	1.292	2575.1	
195	OCONA50	6	85.1	238.4	169.3	52.2	364.8</							

MINISTERIO DE ENERGIA Y MINAS  
 CONSORCIO LAHMEYER - SALZGITTER  
 PROYECTO DE EVALUACION DEL POTENCIAL HIDROELECTRICO DEL PERU

TABLA 6-2 3/3  
 FECHA : 27/ 4/79

LISTADO DE LOS PROYECTOS HIDROELECTRICOS ORDENADO ALFABETICAMENTE		CON						\$ PI \$= 5000.00 MW							
RANK	PROYECTO	ALT. (M)**3/S)	QM (M)	HN (MW)	PI (MW)	PG (MW)	EP (GWH)	ES (GWH)	FT (GWH)	INV (10**6 \$)	FEC (\$/MWH)	FEC1 (-)	KESP (\$/KW)	PROYECTOS CONDicionantes	
221	PAT150	1	44.9	337.2	126.3	51.6	320.5	440.0	760.5	252.5	54.806	0.887	1999.2		
222	PAUC270	2	61.0	157.4	80.1	64.7	648.5	7.6	656.1	297.4	53.476	1.326	3712.9		
223	PAUC280	5	72.0	191.7	115.1	66.2	493.1	289.9	783.0	261.4	48.063	0.927	2271.1		
224	PER10	2	250.0	101.8	212.2	101.2	1002.2	478.6	1480.8	267.9	25.307	0.566	1262.5		
225	PER20	3	259.7	31.0	67.1	8.9	89.8	326.3	416.1	58.6	27.157	0.380	873.3		
226	PER70	8	314.0	151.0	395.6	291.9	2909.4	178.3	3087.7	462.1	18.076	0.432	1168.1		
227	PISCO10	1	9.1	353.1	26.8	15.4	111.5	33.7	145.2	143.0	124.395	2.417	5335.8		
228	PISCO20	1	9.1	756.9	57.4	4.3	26.5	228.1	254.6	56.8	47.399	0.533	989.5		
229	PISCO30	1	12.0	539.6	54.0	4.0	24.9	214.4	239.3	79.3	70.469	0.793	1468.5		
230	PISCO40	1	16.9	361.4	50.9	0.0	0.0	229.6	229.6	50.7	51.820	0.532	996.1		
231	PISCO50	1	16.9	539.6	76.1	0.0	0.0	342.8	342.8	140.5	96.131	0.987	1846.3		
232	PISCO60	1	30.2	933.1	234.7	199.4	1237.5	608.1	1845.6	193.4	13.619	0.303	824.0	CHALO10	
233	PISCO70	1	30.2	359.7	90.5	76.9	477.1	244.2	721.3	102.0	14.716	0.410	1127.1	CHALO10	
234	PISCO80	2	47.1	359.7	141.2	86.3	535.6	409.6	945.2	216.8	20.233	0.634	1535.4	CHALO10	
235	POZ20	7	48.6	237.4	96.2	96.2	675.1	58.7	733.8	261.6	43.557	1.023	2719.3		
236	POZ27	2	62.2	458.4	237.8	52.6	340.2	1133.5	1473.7	263.6	34.088	0.482	1108.5		
237	POZ30	15	155.1	301.6	390.1	290.8	2188.8	573.6	2762.4	545.4	25.843	0.555	1398.1		
238	POZ50	1	183.7	90.2	158.3	37.3	378.5	490.0	868.5	149.6	28.136	0.466	1081.7		
239	PUCH10	1	15.4	223.7	28.7	9.6	64.5	89.8	154.3	85.0	91.111	1.416	2961.7		
240	PUCH20	9	28.8	440.9	105.9	53.6	363.2	241.7	604.9	333.2	80.745	1.446	3146.4		
241	PUNA10	4	13.4	932.8	104.4	104.4	777.4	19.9	797.3	202.9	30.222	0.730	1943.5		
242	QUIRO10	2	13.0	151.7	16.4	9.9	69.4	31.5	100.9	39.6	54.599	1.056	2414.6		
243	QUIRO20	2	20.4	257.6	43.8	29.1	198.3	78.6	276.9	148.4	73.293	1.455	3388.1		
244	RAPAY20	1	17.8	701.5	104.3	28.2	174.8	489.3	664.1	159.0	44.463	0.651	1524.4		
245	RIMAC10	1	5.1	1253.1	53.3	53.3	338.9	82.4	421.3	199.6	61.599	1.373	3744.8		
246	RIMAC20	1	27.0	224.8	50.6	10.3	64.0	202.1	266.1	95.7	63.534	0.917	1891.3	RIMAC10	
247	SALCA40	2	49.0	456.6	186.6	126.8	848.4	297.3	1145.7	194.6	22.891	0.457	1042.9		
248	SAMA10	1	30.0	1392.2	348.3	272.6	1695.6	1040.2	2735.8	258.1	48.818	0.273	741.0	LOCUM10	
249	SAMA20	1	30.0	314.8	78.8	8.3	51.5	310.0	361.5	109.0	61.907	0.731	1383.2		
250	SAMA30	1	30.0	314.8	78.8	8.3	51.5	310.0	361.5	104.6	59.424	0.702	1327.4		
251	SAMA40	1	30.0	107.9	27.0	27.0	236.5	0.0	236.5	68.8	70.356	0.866	2548.1	LOCUM10	
252	SAMA50	1	33.2	60.9	16.9	14.7	147.8	0.0	147.8	50.5	70.615	0.464	1804.7	LOCUM10	
253	SANJU10	1	14.3	530.6	63.3	11.4	74.3	206.6	280.9	89.0	58.740	0.758	1406.0		
254	SANJU20	1	20.0	533.9	89.1	18.5	118.7	277.1	395.8	114.2	52.054	0.691	1281.7		
255	SANJU30	1	20.0	359.7	60.0	4.5	27.6	238.2	265.8	104.6	85.589	0.941	1743.3		
256	SANJU40	1	20.0	354.1	59.1	7.6	49.5	217.6	267.1	118.4	87.752	1.069	2003.4		
257	SANJU50	1	20.0	171.5	28.6	10.1	73.2	74.9	148.1	104.7	111.008	1.793	3660.8		
258	SANTA10	1	7.2	238.1	14.4	14.4	118.6	1.9	120.5	85.8	55.031	1.370	5958.3		
259	SANTA110	11	86.9	278.8	202.1	66.2	410.8	857.8	1268.6	233.4	32.601	0.498	1154.9		
260	SANTA120	13	100.9	409.4	344.5	195.1	1391.5	807.2	2198.7	579.2	36.811	0.697	1681.3		
261	SANTA145	5	130.0	251.7	272.9	183.7	1578.7	273.4	1852.1	620.3	42.418	0.929	2273.0		
262	SANTA20	1	13.1	303.7	33.3	19.7	137.4	86.4	223.8	161.0	92.133	1.753	4834.8		
263	SANTA30	3	32.3	151.0	40.7	23.6	188.0	98.0	286.0	112.9	44.336	0.878	2774.0		
264	SANTA40	10	18.3	524.0	80.1	80.0	576.2	46.9	623.1	277.3	50.113	1.186	3461.9		
265	SANTA60	3	52.0	214.8	93.2	65.2	470.5	175.9	646.4	194.7	35.399	0.728	2089.1		
266	SANTA70	3	52.0	170.9	74.1	21.9	136.0	320.7	456.7	236.6	93.647	1.395	3193.0		
267	SANTA80	5	62.7	215.8	112.9	37.0	229.5	479.2	708.7	278.1	69.541	1.063	2463.2		
268	SANTA90	5	73.5	86.2	52.8	14.4	145.8	185.7	331.5	97.7	39.124	0.650	1890.4		
269	SGAB10	2	49.8	940.7	390.7	91.7	583.3	1504.6	2087.9	241.0	21.166	0.296	616.8		
270	SGAB30	3	62.0	914.4	472.8	186.9	1248.2	1709.8	2958.0	547.8	30.592	0.501	1158.6		
271	SGAB60	4	75.0	109.5	68.3	19.7	198.8	233.7	432.5	175.5	65.211	1.102	2569.5		
272	SONU20	8	6.8	458.7	26.0	16.3	109.2	45.5	154.7	109.8	97.568	1.889	4223.1		
273	SONU30	5	13.2	583.2	64.2	49.9	338.7	54.4	393.1	293.7	94.154	2.007	4574.8		
274	STOM120	4	83.0	257.2	178.0	48.7	302.0	858.8	1160.8	273.0	43.784	0.645	1533.7		
275	STOM170	2	95.7	171.8	137.2	25.5	158.3	574.5	732.8	223.0	58.707	0.781	1625.4		
276	STOM30	1	25.7	300.2	64.4	32.0	223.0	145.3	368.3	238.0	94.427	1.698	3695.7		
277	STOMB5A	2	69.6	289.1	167.7	79.0	592.6	370.7	963.3	299.9	45.220	0.819	1788.3		
278	TAB10	1	75.0	86.9	54.3	24.7	243.5	176.3	424.8	95.4	33.221	0.649	1756.9		
279	TABLA10	1	27.5	421.1	96.6	52.5	340.7	235.6	576.3	182.2	44.497	0.804	1886.1		
280	TACNA10	1	4.3	472.0	16.9	16.9	136.0	2.2	138.2	100.2	85.670	2.118	5929.0		
281	TACNA20	1	4.3	482.9	17.3	10.4	64.2	54.5	118.7	29.8	38.199	0.698	1722.5		
282	TACNA30	1	4.3	976.3	35.0	20.9	129.9	110.1	240.0	44.7	28.376	0.519	1277.1		
283	TACNA40	1	4.3	357.6	12.8	7.7	47.6	40.4	88.0	20.3	35.133	0.642	1585.9		
284	TACNA50	1	4.3	321.5	11.5	6.9	42.8	36.3	79.1	17.8	34.349	0.628	1547.8		
285	TAM40	4	2071.5	74.5	1265.5	427.6	4345.8	3979.0	8324.8	827.5	15.321	0.272	643.2		
286	TAM50	2	2172.5	32.0	579.8	196.2	1948.0	1800.5	3748.5	534.3	22.002	0.390	921.5		
287	TAMBU10	6	19.0	172.1	27.3	27.3	238.8	0.0	238.8	300.3	141.224	3.583	11000.0		
288	TAMBU100	1	54.3	179.9	81.5	45.4	281.9	276.0	557.9	212.6	89.068	1.060	2603.6	TAMBO10	
289	TAMBU110	1	56.5	107.5	50.6	26.4	268.6	110.1	378.7	167.9	94.144	1.235	3318.2	TAMBO10	
290	TAMBU20	1	24.2	302.6	61.1	61.1	529.8	3.7	533.5	235.0	79.019	1.291	3846.2	TAMBO10	
291	TAMBU30	1	31.5	359.7	94.5	84.1	522.1	229.4	751.5	231.1	69.478	0.893	2445.5	TAMBO10	
292	TAMBU50	2	31.5	544.1	142.9	127.3	789.7	347.0	1136.7	120.1	39.779	0.307	840.4	TAMBO10	
293	TAMBU60	4	31.5	449.7	118.1	105.2	652.6	286.8	939.4	189.2	54.041	0.585	1602.0	TAMBO10	
294	TAMBU70	2	50.7	809.4	342.2	202.0	1253.7	1131.2	2384.9	349.1	36.283	0.409	1020.2	TAMBO10	
295	TAMBU80	2	54.3	179.9	81.5	45.4	281.9	276.0	557.9	356.0	114.596	1.775	4369.1	TAMBO10	
296	TAMBU90	1	54.3	179.9	81.5	45.4	281.9	276.0	557.9	170.9	81.628	0.852	2096.9	TAMBO10	
297	TOTOR10	1	14.8	179.9	22.2	3.0	18.5	108.9	127.4	27.5	44.251	0.568	1238.7		
298	TULU10	1	41.1	453.6	155.5	44.3	303.1	528.9	832.0	171.1	35.351	0.528	1100.3		
299	TULU20	2	51.0	389.1	165.5	45.2	280.7	798.5	1079.2	111.1	19.168	0.282	671.3		
300	TULU30	5	76.3	338.7	215.5	53.6	379.4	956.7	1336.1	213.9	29.244	0.432	992.6		
301	TULU50	7	82.5	353.2	243.0	79.5	544.1	966.6	1510.7	265.7	30.335	0.475	1093.4		
302	TULU70	1	116.0	205.3	198.6	62.6	497.2	742.6	1239.8	331.0	44.711	0.722	1666.7		
303	URAB10	3	9.6	1228.8	98.4	98.4	861.6	0.0	861.6	230.3	31.350	0.795	2340.4		
304	URUB190	4	178.0	324.4	481.6	335.4	2478.6	942.6	3421.2	496.7	19.752	0.408	1031.4		
305	URUB25														

MINISTERIO DE ENERGIA Y MINAS
CONSORCIO LAHMEYER - SALZGITTER
PROYECTO DE EVALUACION DEL POTENCIAL HIDROELECTRICO DEL PFRU

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LISTADO DE LOS PROYECTOS HIDROELECTRICOS

ORDENADO EN FORMA DESCENDIENTE POR : PI

CON 0.00 MW \$ PI \$= 5000.00 MW

Table with columns: RANK, PROYECTO, ALT., QM (M\*\*3/S), HN (M), PI (MW), PG (MW), FP (GWH), FS (GWH), ET (GWH), INV (10\*\*6 \$), FFC (\$/MWH), FFC1 (-), KFSP (\$/KW), PROYECTOS CONDICIONANTES. Rows include various project names like ENE40, MARA570, INA200, etc.