

### **Aries Generation by Case**

As discussed at the May 31 stakeholder meeting, the Aries unit generates less in the SPP case than in the Midwest ISO case. CRA has reviewed the commitment and dispatch of the Aries unit to confirm that the MAPS model is working correctly. Based on this review, the higher generation of Aries in the Midwest ISO case in the MAPS modeling is driven largely by two inter-related factors.

The first is the relative level of natural gas prices in Missouri for the Aries unit with respect to the level of gas prices elsewhere in the SPP and elsewhere in the Midwest ISO. Gas prices are somewhat lower in Missouri and thus for the Aries CC relative to other CCs in the Midwest ISO. In contrast, the Missouri-Aries CC gas prices are somewhat higher than the gas prices in most other areas of SPP.

The second factor is the combination of transmission limitations and seams charges. The transmission inter-tie capacity between Aquila and the Midwest ISO (Ameren) is relatively small in comparison to the capacity between KCPL and Aquila Missouri. In the SPP case, there are no seams charges across the significant inter-ties between KCPL and Aquila Missouri. In the Midwest ISO case, there are significant seams charges across these same KCPL and Aquila inter-ties.

The combination of gas prices, transmission limitations and seams charges results in Aries being committed and dispatched more often in the Midwest ISO case in the MAPS modeling. In the SPP case, Aquila is able to import additional power from SPP at marginal prices less than the Aries generation. In the Midwest ISO case, seams charges decrease the ability of SPP units to economically meet this Aquila load, and gas prices differences and transmission limitations between Aquila and the rest of the Midwest ISO are such that Aries is more often the least cost alternative.

# Aquila Missouri Annual Generation, Purchases, Sales (GWh)

	2008		2008		2012		2012		2017	
	StAlone	in MISO	2008	in SPP	StAlone	in MISO	2012	in SPP	StAlone	in MISO
										in SPP
<b>I. With Aries included in Generation</b>										
+ Generation, incl. Aries (a)	9,149	9,055	7,825		9,928	9,670	7,756		10,483	10,102
+ Purchases, excl. Aries	365	713	1,324		538	1,095	2,326		1,161	1,658
- Sales	494	748	130		406	705	20		270	386
= Net	9,020	9,019	9,020		10,060	10,060	10,062		11,375	11,374
<b>Increase Relative to Standalone</b>										
+ Generation		(94)	(1,324)			(258)	(2,173)			(381)
+ Purchases		348	959			556	1,788			497
- Sales		254	(364)			299	(386)			116
Aries Generation	1,533	1,413	231		2,263	2,124	564		3,239	2,939
<b>II. With Aries included in Purchases</b>										
+ Generation, excl. Aries	7,615	7,642	7,594		7,665	7,546	7,192		7,244	7,162
+ Purchases, incl. Aries	1,899	2,126	1,556		2,801	3,219	2,890		4,400	4,597
- Sales	494	748	130		406	705	20		270	386
= Net	9,020	9,019	9,020		10,060	10,060	10,062		11,375	11,374
<b>Increase Relative to Standalone</b>										
+ Generation		26	(22)			(119)	(474)			(82)
+ Purchases		227	(343)			417	89			197
- Sales		254	(364)			299	(386)			116

(a) - Includes jointly-owned units and unit purchases outside of the Aquila-Missouri control area and merchant generation inside the Aquila-Missouri control area