

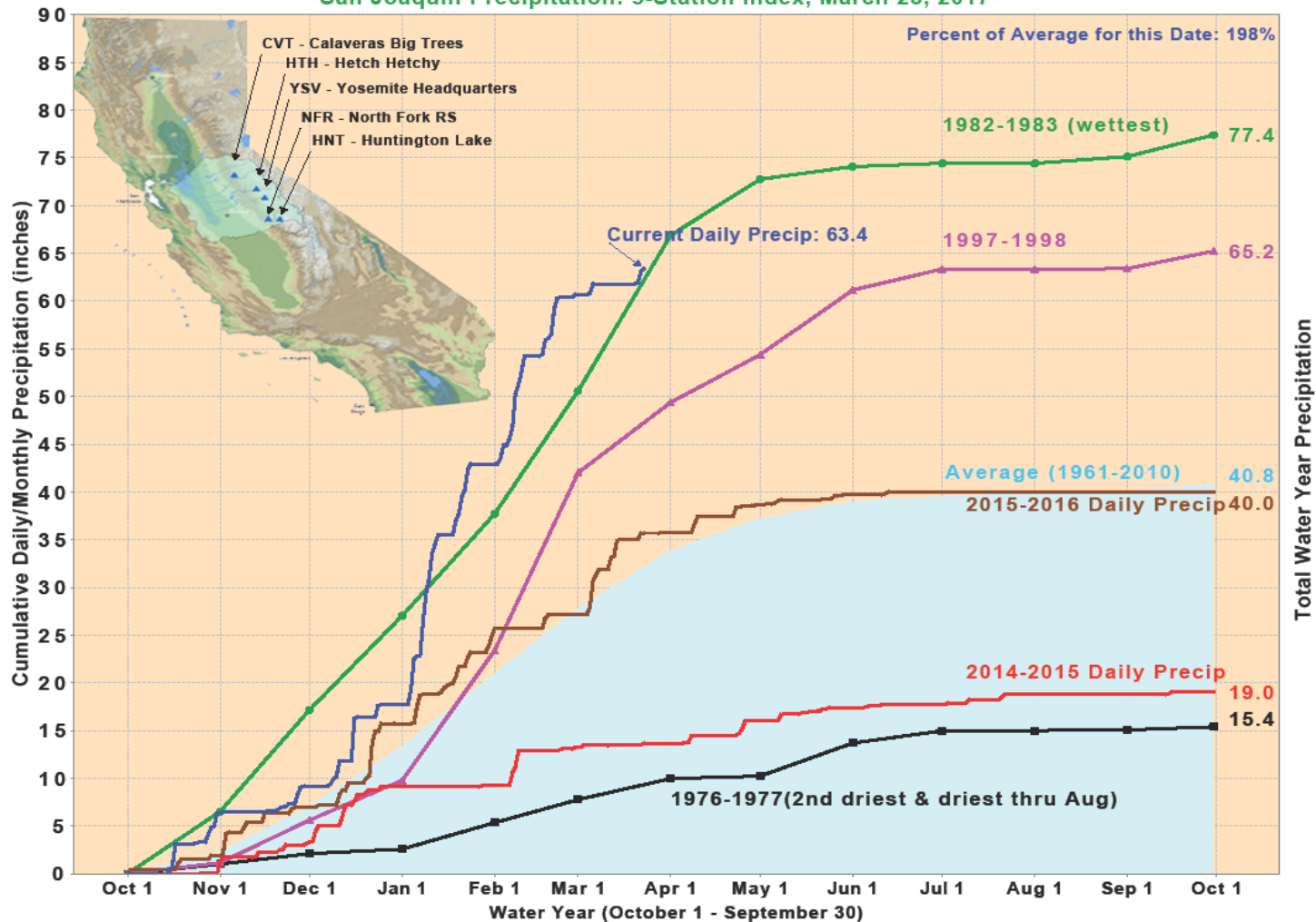
# **Calaveras Project Hydrology Update Meeting**

Facilities Committee Meeting

April 5, 2017

# Current Conditions

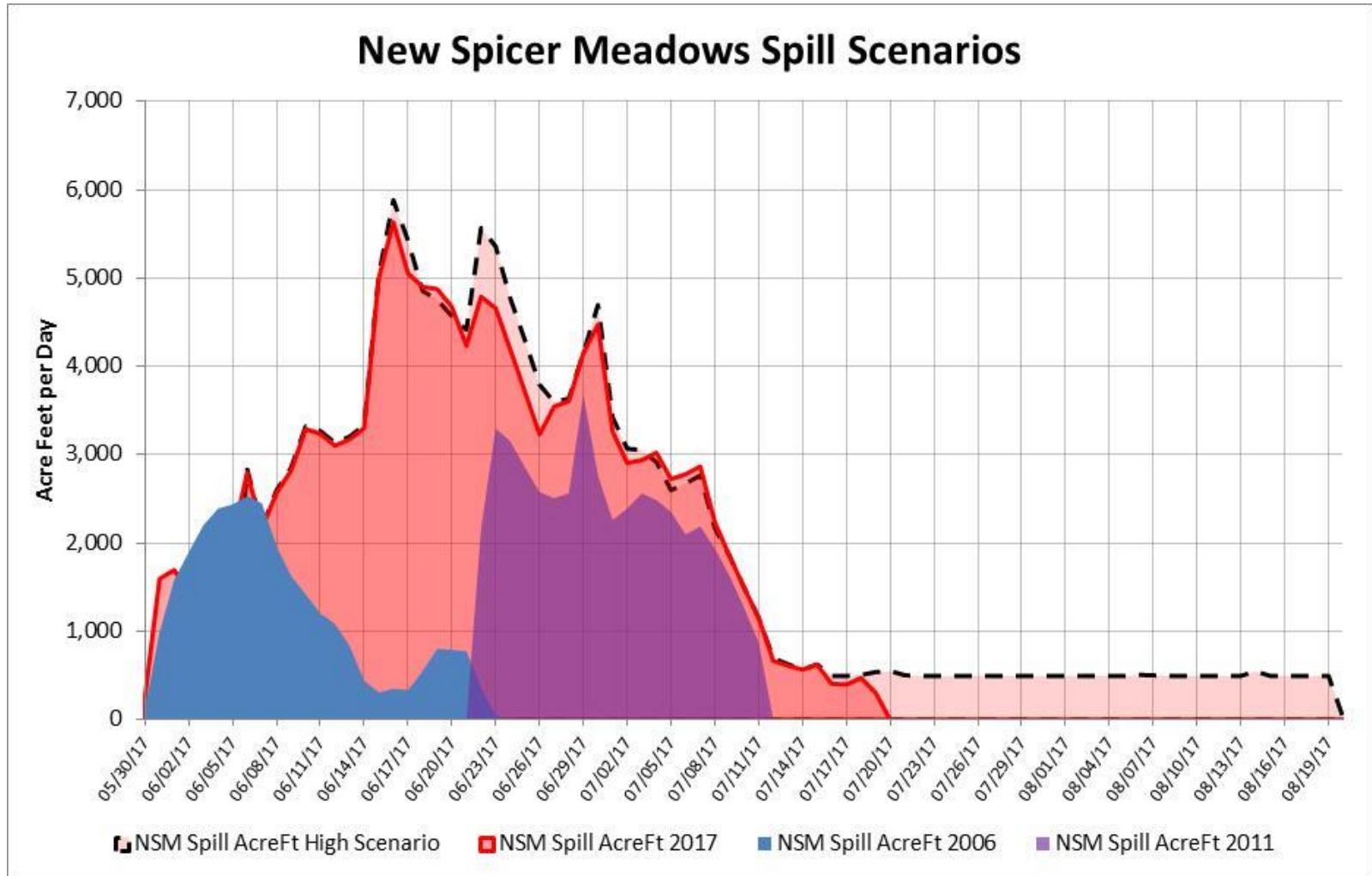
San Joaquin Precipitation: 5-Station Index, March 23, 2017



# Current New Spicer Meadows Release Strategy

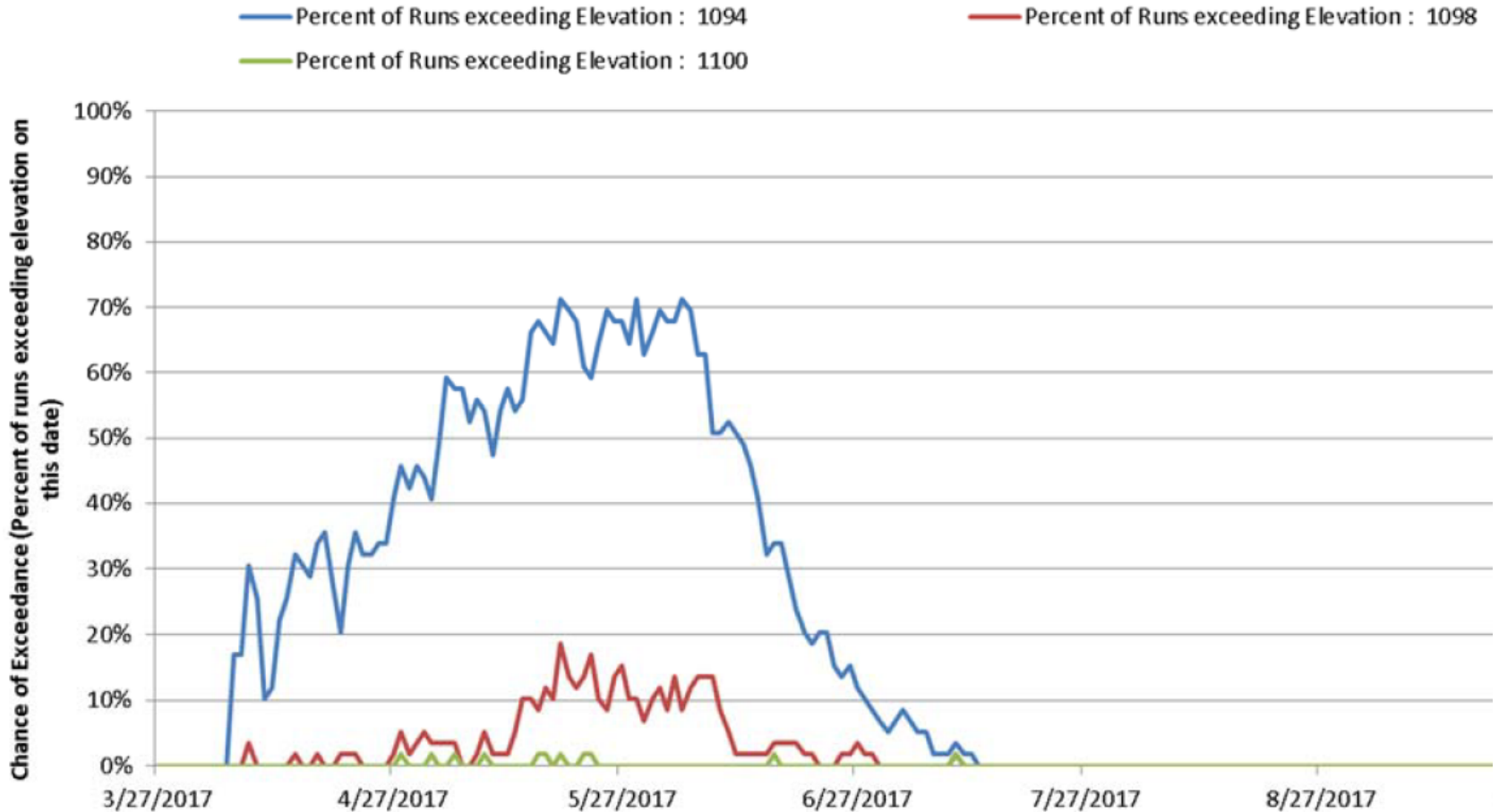
- **Minimum releases 400 cubic feet per second**  
**--Maximizes generation at New Spice Meadows for both energy and REC value**
- **NSM releases will vary between 400 cfs and 1,200 cfs depending on unregulated river side flow and through put at Collierville of approximately 1,450 cfs.**
- **Accept spill at Collierville when NSM releases are at 400 cfs and Avery Gauge above 1,450 cfs**
- **Also accept spill at Collierville when regulation down causes spill or when day-ahead ancillary services capacity awards displace energy**
- **Monitor probability of tail water curtailments in late May to determine the need for increased releases of out NSM and purposeful spill at McKays.**

# New Spicer Meadows Comparative Spill Duration



Source: Power Management Model

# Probability of Tail Water Curtailment



Source: Memorandum ECOPR Consulting, INC 03-28-2017

Note: Tail water can become a curtailing issue when the river back up to an elevation of 1094 feet.

As the river rise from 1094 to 1098 the units' output is reduces.

At an elevation of 1099 the units are manually taken offline.

At an elevation of 1100 the units trip.

# New Spicer Meadows Generation Considerations

- **Scheduling into a Negative Price Environment**  
--Currently self-scheduling these units into the Market
- **Bid the negative value of the REC (e.g., -\$15)**
- **Operational concern of unit tripping may need to be incorporated into the bids**
- **Self-schedule some level of minimum generation may be required**
- **Bidding should only be implemented when the average day-ahead locational marginal price falls below the REC value plus some probable cost of tripping**

# New Spicer Meadows Generation Consideration

Thursday March 30, 2017

POD_SPICER_1_UNITS-APND			
HOUR	Day-Ahead	FMM-Time	Real-Time
1	\$ 6.34	\$ 11.47	\$ 4.28
2	\$ 4.10	\$ 4.31	\$ 3.56
3	\$ 1.70	\$ 4.47	\$ 0.01
4	\$ 1.93	\$ 0.01	\$ 0.01
5	\$ 7.94	\$ 3.24	\$ 10.79
6	\$ 25.16	\$ 14.30	\$ 14.21
7	\$ 37.70	\$ 41.10	\$ 20.99
8	\$ 43.16	\$ 34.40	\$ 12.81
9	\$ 14.50	\$ 32.43	\$ 5.45
10	\$ 1.33	\$ 1.07	\$ 16.99
11	\$ 1.24	\$ (3.03)	\$ (7.64)
12	\$ 0.59	\$ (15.02)	\$ (11.55)
13	\$ 0.99		
14	\$ 0.67		
15	\$ 0.75		
16	\$ 0.21		
17	\$ 0.88		
18	\$ 9.12		
19	\$ 34.24		
20	\$ 51.65		
21	\$ 48.17		
22	\$ 37.15		
23	\$ 26.16		
24	\$ 13.06		
OFF Avg. \$	\$ 10.80	\$ 6.30	\$ 5.48
ON Avg. \$	\$ 17.65	\$ 15.16	\$ 6.17
Avg \$:	\$ 15.36	\$ 10.73	\$ 5.82

Sunday March 26, 2017

POD_SPICER_1_UNITS-APND			
HOUR	Day-Ahead	FMM-Time	Real-Time
1	\$ 9.08	\$ 10.93	\$ 6.10
2	\$ 4.86	\$ 4.63	\$ 13.24
3	\$ 3.89	\$ 6.68	\$ 16.77
4	\$ 7.48	\$ 6.77	\$ 8.22
5	\$ 8.09	\$ 7.33	\$ 0.01
6	\$ 13.82	\$ 10.34	\$ 14.55
7	\$ 23.79	\$ 13.76	\$ 9.90
8	\$ 23.44	\$ 10.74	\$ 1.05
9	\$ 0.51	\$ 1.86	\$ (3.79)
10	\$ -	\$ (1.92)	\$ (12.31)
11	\$ (0.90)	\$ (13.58)	\$ (7.04)
12	\$ (5.64)	\$ (4.79)	\$ (2.50)
13	\$ (7.06)	\$ (8.27)	\$ (10.66)
14	\$ (12.54)	\$ (14.06)	\$ (15.87)
15	\$ (12.50)	\$ (15.77)	\$ (16.61)
16	\$ (8.68)	\$ (22.75)	\$ (13.04)
17	\$ (0.59)	\$ (1.98)	\$ 4.30
18	\$ 2.01	\$ 25.14	\$ 253.78
19	\$ 33.59	\$ 31.92	\$ 257.91
20	\$ 51.57	\$ 49.15	\$ 25.24
21	\$ 46.42	\$ 43.64	\$ 25.24
22	\$ 40.48	\$ 35.33	\$ 22.00
23	\$ 24.68	\$ 15.07	\$ 9.29
24	\$ 16.32	\$ (4.84)	\$ (13.72)
OFF Avg. \$	\$ 11.03	\$ 7.11	\$ 6.81
ON Avg. \$	\$ 10.87	\$ 8.03	\$ 32.35
Avg \$:	\$ 10.92	\$ 7.72	\$ 23.84

# Meter Subsystem Considerations

- Large swings in Collierville generation will need to be avoided (> 100 MW)
- Self-schedule load following down energy (SVP and POOL)
- Self-schedule a base amount of 10 to 15 MW?
- Negative energy bids offset with Regulation Down bids of corresponding value and quantity (e.g. Energy Bid -\$10 Reg Down bid -\$50 SVP quantity of 50, POOL quantity of 50)
- \$0.00 bid for remaining capacity
- Roseville's 29 MWs independently bid because it is not part of the MSSA.