Proposed Experimentation WY 06

Developed by:

- **Western Area Power**
- **Arizona Game & Fish**
- **Federated Fly Fishermen**

WY 06 Proposal for Experimentation

- Consistent with our overall philosophy of Long-term science design
- Contingent on AG&F evaluation of the status and health of the trout population
- A draft proposal – subject to change
- Time is short

Principles Considered in Development of LTEP

- Targets HBC and sediment conservation
- Fidelity to ALL AMP goals
  - Will not include actions that knowingly, adversely affects a CRE resource, LT
  - Will attempt to seek improvement in other resources (where consistent with improving the targeted resources - e.g. trout, AFB)
- Will not have significant, long-term adverse affect on power

Principles – cont.

- Afflict as much improvement as possible on the targeted resources
- In the initial assemblage of management actions, do not include actions that have significant long term adverse effect on power or other EIS-identified resources
- Seek actions that may provide improvement for both power and other EIS-identified, CRE resources

LTEP Approach – cont;

- Once a set of management actions and experimentation is identified which is likely to accomplish these ends, experimentation can occur seeking win/win “deals” that include greater flexibility for power production and other resources (e.g. AFB, trout and trout fishability)

Hybrid Approach

- Maximizes resource improvements at the earliest time
- Allows for “learning”, however, until “reverse titration” is initiated, cause and effect signals may be confused

Hybrid Approach

- Best chance to afflict improvement early on
- Takes care of potential adverse effects of single treatments:
  - TCD increases warm-water invasive fish? Mechanical removal adjusts to target warm water fish
  - NNFS flows transport more sediment? Combine with fall BHBFs

WY 06 Experimentation for Power Improvement – Seeking Win/Win Deals for Other Resources

- Once you have a set of actions and experiments that are likely to achieve the goals for the target resources, seek actions that offer win/win arrangements for other resources
- WY 06 proposal experiments with operating parameters – seeking improvements for power, trout & AFB

WY 06
Management Actions Proposed

- Continue advancing the TCD
- Continue implementation of HBC comprehensive plan components
  - translocation
  - Possible refugia, grow out ponds or hatchery
- Mechanical removal
  - Adaptively modified to manage warm-water fish, target different locations etc.

WY 06 Proposal
Flow component

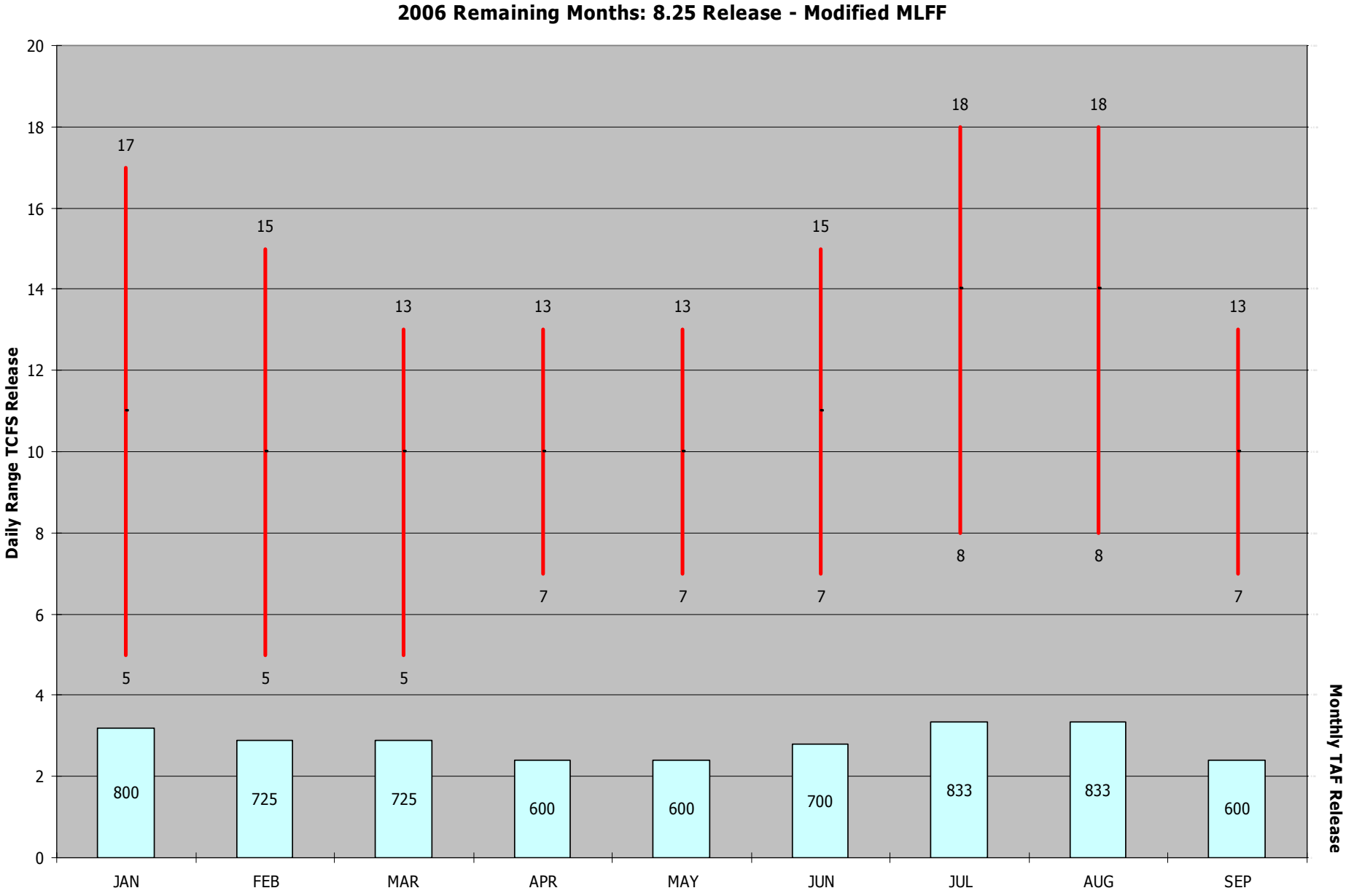
- **Non-Native Fish Management Flows**
  - **Winter flows**
  - **Summer Standing Flows**
- **Aquatic Food Base Restoration Flows**
- **Power Production Experiments**
  - **Modifications of ROD parameters proposed, on an experimental basis – seeking improvement in power, AFB, Trout, Trout fishery**

WY 06 Experimentation Proposed NNFM Flows

- Adopted from Korman report
- Winter flows
  - Modified
- Summer stranding flows
- August – Sept. transition
- NNFM flows are more effective with mechanical removal
- More effective still, because of its potential to improve HBC, tout and power (a win/win)
  - Variations would be the subject of experimentation and adaptive management
  - Intended to assist in managing trout and other non-natives that possibly “drift” downstream from Lee Ferry
  - Intended to improve the condition of trout

Non-Native Fish Management Flows

- **Effectiveness of proposed Winter-season flows (as NNFM) depends on the health and status of trout**
- **Previous years – little effect of adult trout stranding**
  - **Choices are: 1) increase fluctuation, 2) target larval and juvenile trout**
- **Increased fluctuation has adverse effect on other resources**
  - **Winter fluctuations target larval/juveniles, trout and trout fishability**
  - **Summer stranding flows**


2006 Remaining Months: 8.25 Release - Modified MLFF
Daily Range TCFS Release
Monthly TAF Release
20
18
16
14
12
10
8
6
4
2
0
17
15
13
13
13
15
18
18
13
5
5
5
7
7
7
8
8
7
800
725
725
600
600
700
833
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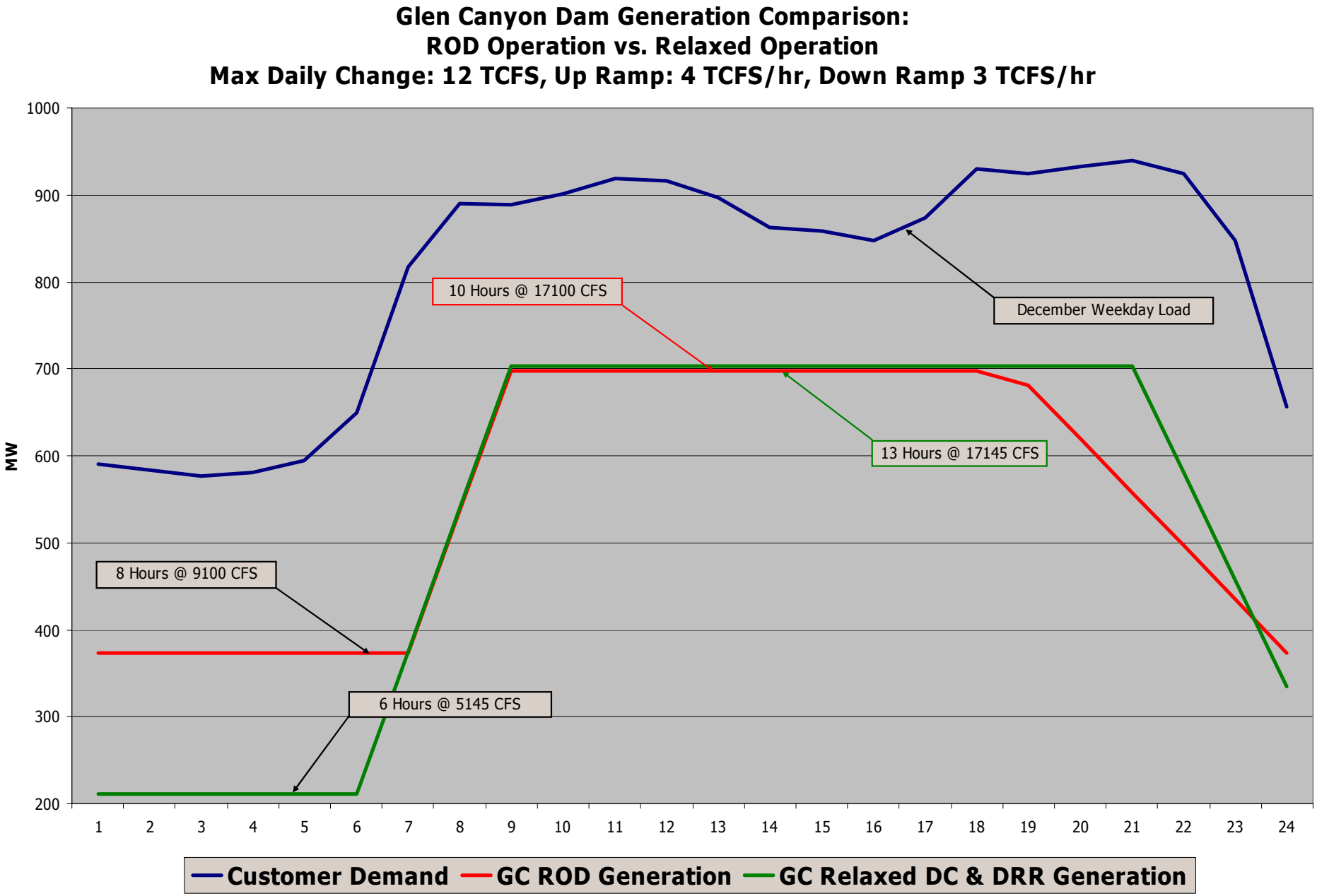
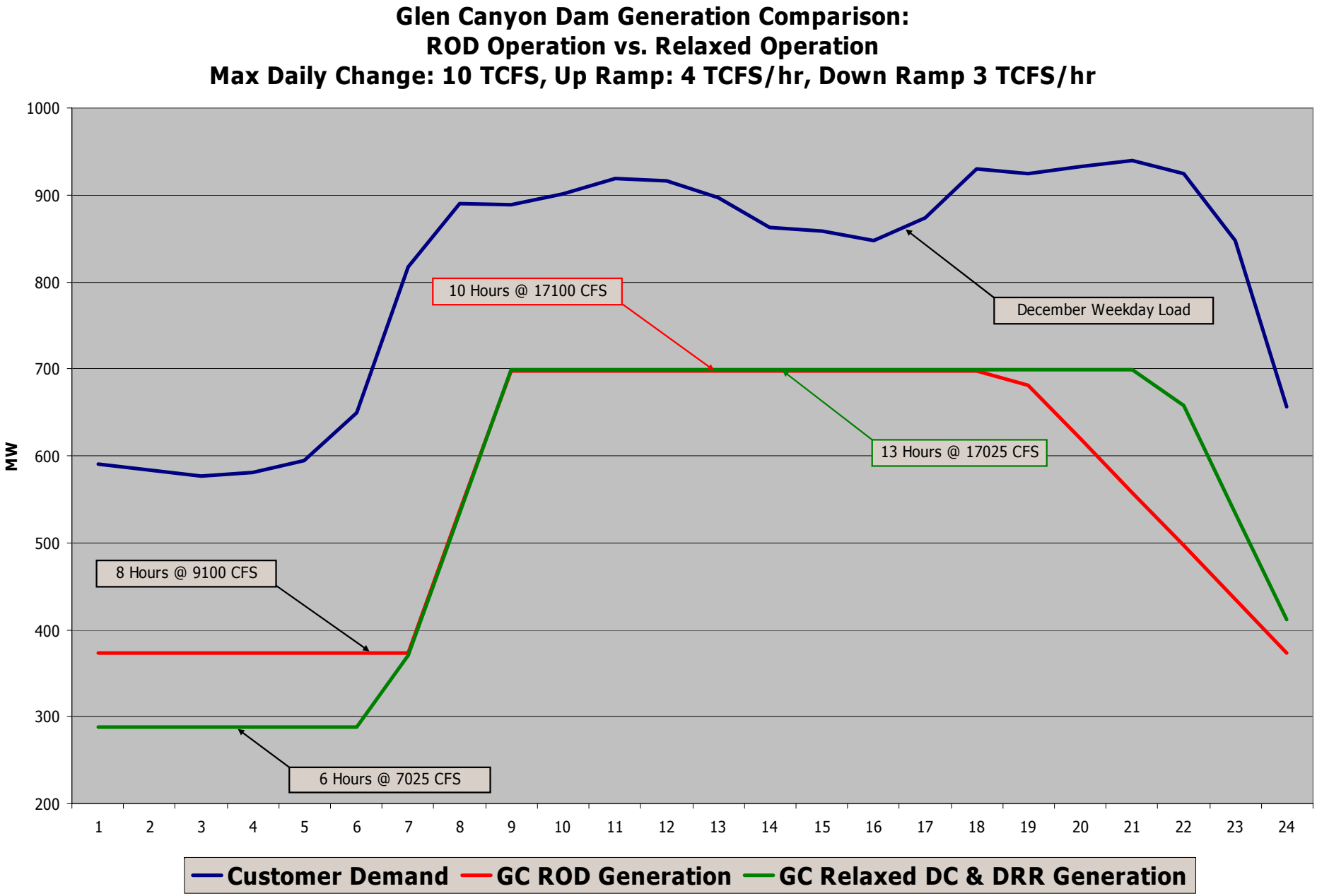
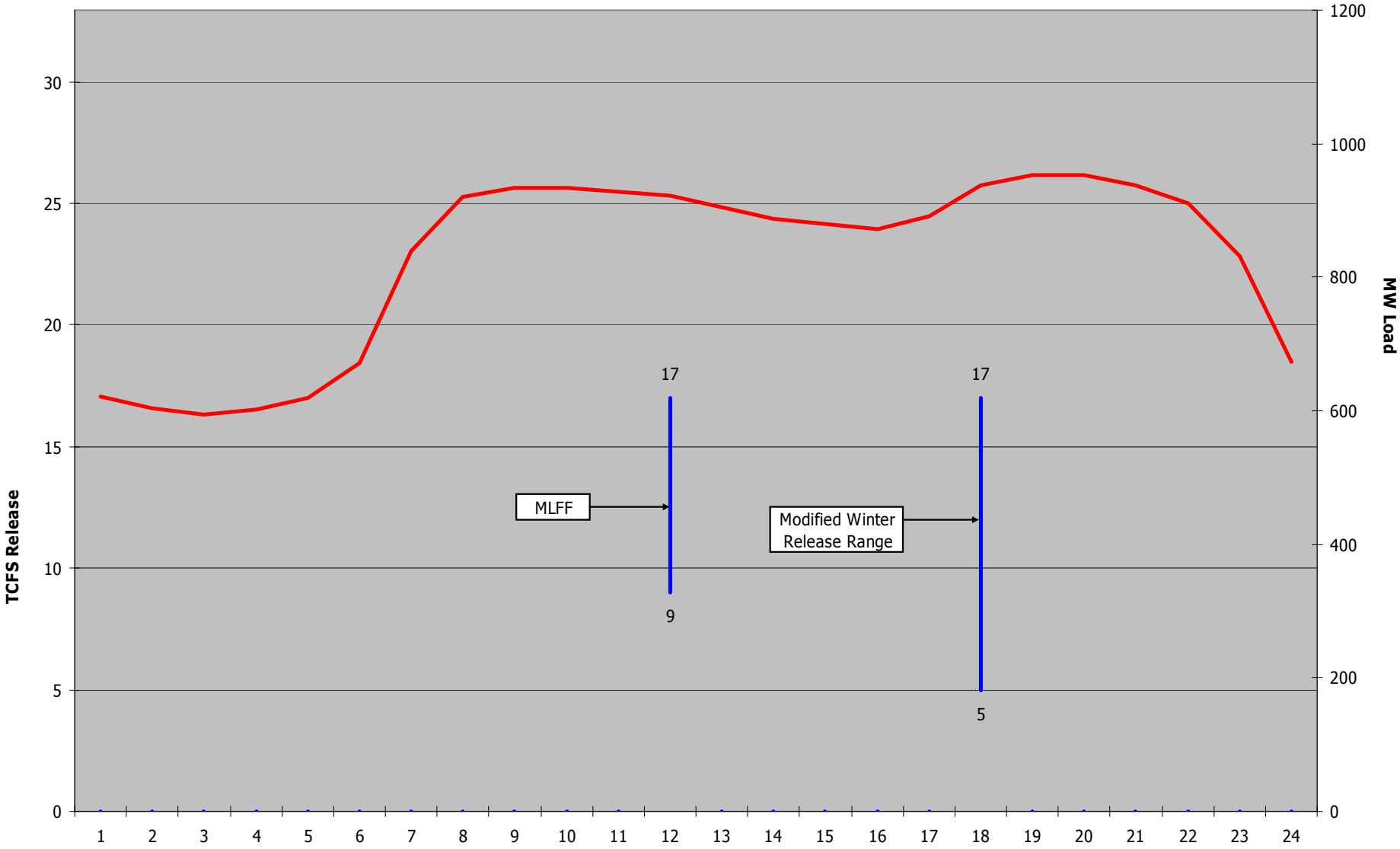
600
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP

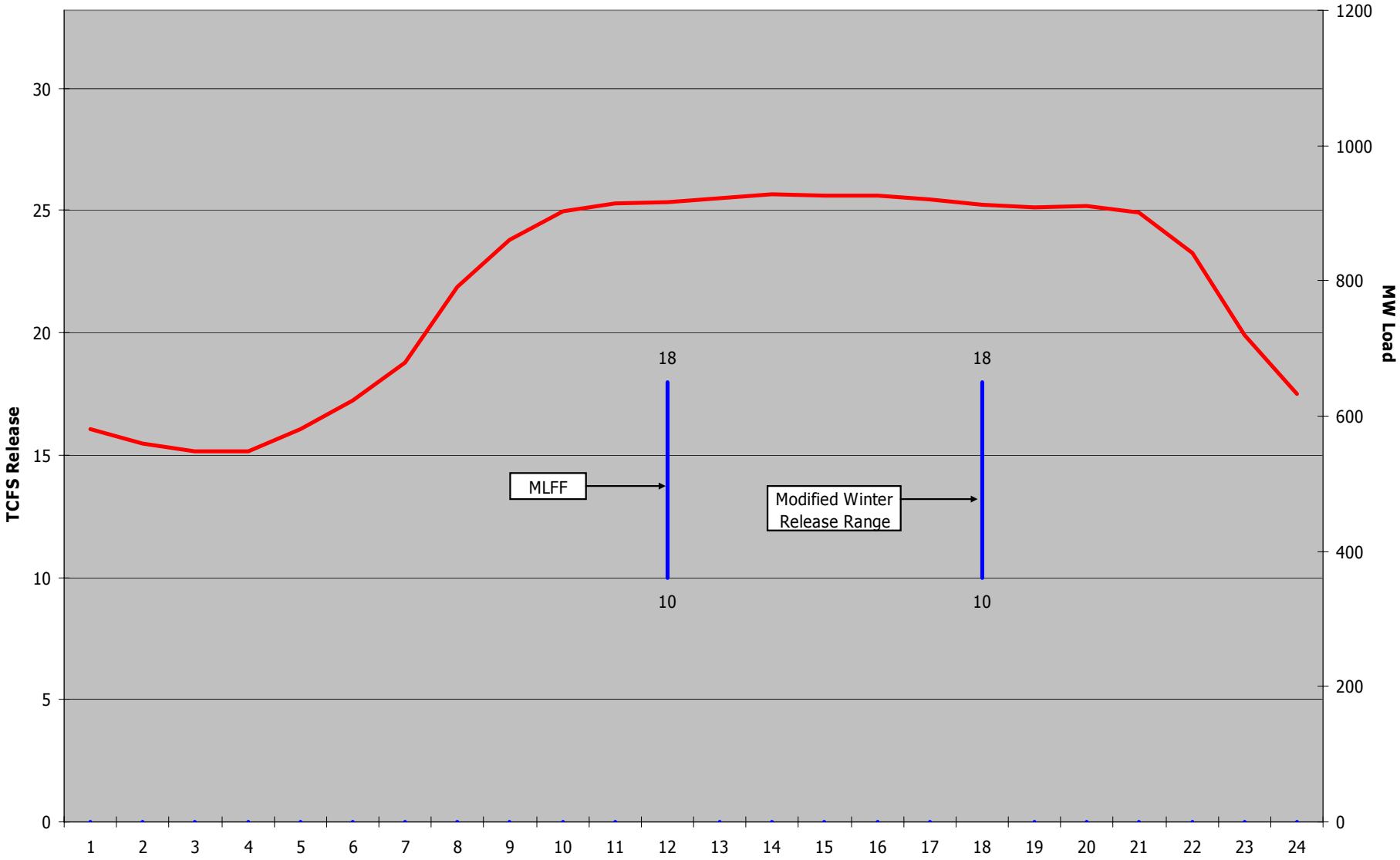

Glen Canyon Dam Generation Comparison:
ROD Operation vs. Relaxed Operation
Max Daily Change: 12 TCFS, Up Ramp: 4 TCFS/hr, Down Ramp 3 TCFS/hr
MW
1000
900
800
700
600
500
400
300
200
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
10 Hours @ 17100 CFS
December Weekday Load
13 Hours @ 17145 CFS
8 Hours @ 9100 CFS
6 Hours @ 5145 CFS
Customer Demand
GC ROD Generation
GC Relaxed DC & DRR Generation


Glen Canyon Dam Generation Comparison:
ROD Operation vs. Relaxed Operation
Max Daily Change: 10 TCFS, Up Ramp: 4 TCFS/hr, Down Ramp 3 TCFS/hr
MW
1000
900
800
700
600
500
400
300
200
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
10 Hours @ 17100 CFS
December Weekday Load
13 Hours @ 17025 CFS
8 Hours @ 9100 CFS
6 Hours @ 7025 CFS
Customer Demand
GC ROD Generation
GC Relaxed DC & DRR Generation

Average Winter Month Load Patern with Proposed Operational Ranges



Average Summer Month Load Patern with Proposed Operational Ranges



Average Shoulder Month Load Patern with Proposed Operational Ranges