Alabama Power Company
Water Use and Withdrawals

June 19, 2003

E4 – Water Quantity, Water Use, and Water Withdrawals

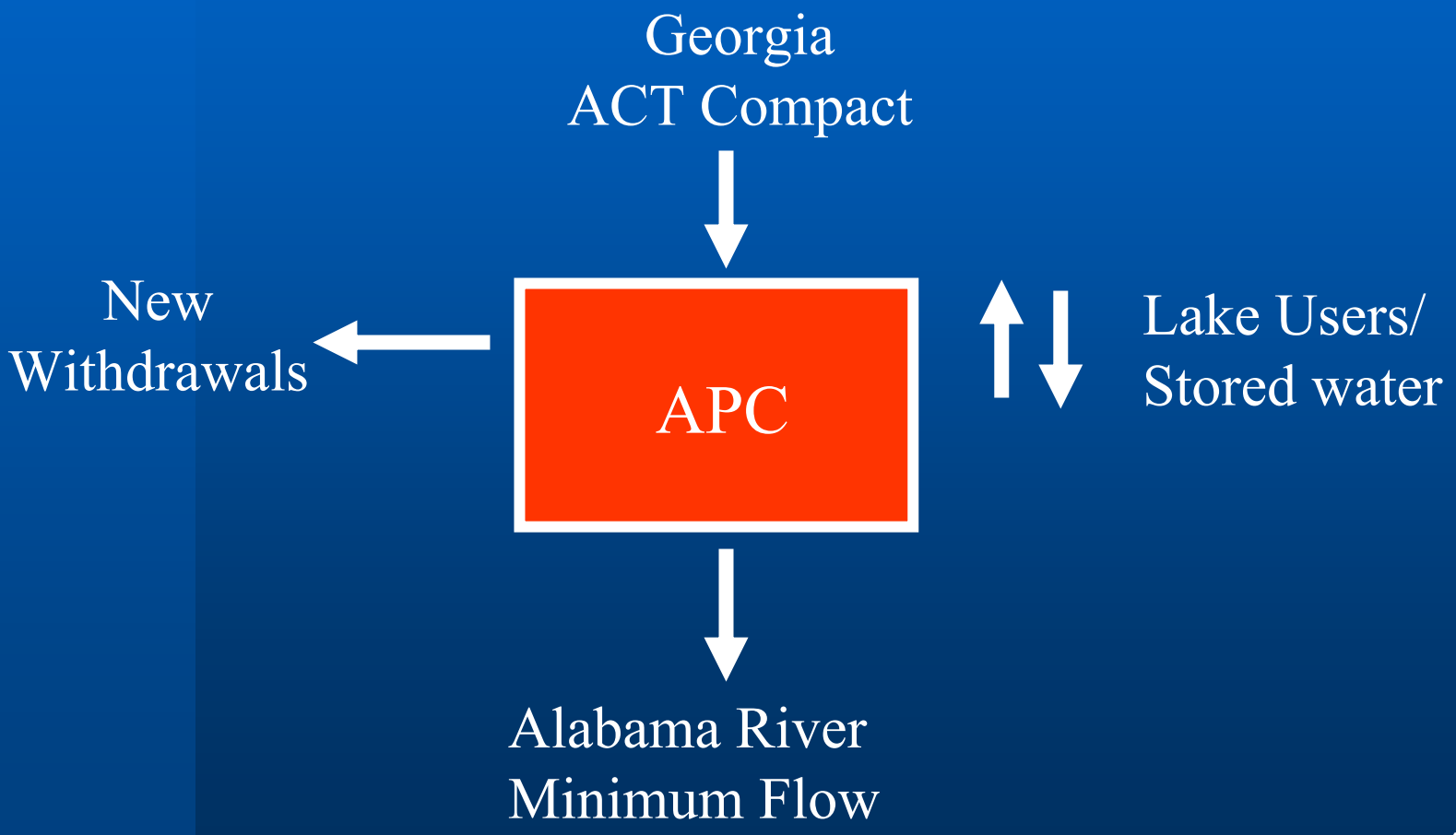
Issue Statement for E4

Effect of current water uses in the Coosa Basin (water withdrawals, drought/flood operations, navigation flow requirements, etc.) on the aquatic resources of the project study area.

E4 – Water Quantity, Water Use, and Water Withdrawals

- **Provide a basic understanding of issues associated with:**
  - **Water Withdrawals**
  - **Required Project Releases**
  - **Drought Operations**

APC's Challenge



E4 – Water Quantity, Water Use, and Water Withdrawals

- **Water Withdrawals**
  - **Application Process**
  - **Compensation**
- **Required Project Releases**
  - **Ecological**
  - **Recreational**
  - **Navigational**
- **Drought Operations**

FERC Approved Permits

Current Coosa/Warrior Permitted Users			
Withdrawer	Reservoir	Date Approved	Amount (mgd)
Mid West Nurseries	Weiss	Feb-79	1
Talladega/Shelby Co.	Lay	Jan-89	30
City of Clanton	Mitchell	Jan-88	3
Town of Arley	Smith	Jul-88	3
Town of Curry	Smith	Jun-89	3
Five Star	Bouldin	Mar-98	14
Sylacauga	Lay	May-99	30
Gadsden Golf Course	Henry	Jun-02	1
Total			85

Recent Requests or Inquiries

400+ MGD

Water Withdrawals

- **FERC Licenses require that no water withdrawal intake may be located on project lands without FERC approval.**
- **FERC allows the Company to receive reasonable compensation for impacts caused by water withdrawals**

Water Withdrawals

- FERC Licenses require that no water withdrawal intake may be located on project lands without FERC approval

- **FERC allows the Company to receive reasonable compensation for impacts caused by water withdrawals**

Water Withdrawals

- **Compensation policy established in 1989**
  - **because of negative impacts to system due to increased demand and the drought**
  - **An attempt to make APC's electric customers whole**

Water Withdrawals

- **Compensation calculation based on following assumptions:**
  - **Withdrawer uses 1 mgd for 365 days**
  - **Based on our study of reservoir storage costs in the region**
  - **Based on there being no cross subsidy between electric customers and water withdrawers**

Water Withdrawals

- **Compensation calculation based on following assumptions:**
  - **Withdrawer uses 1 mgd for 365 days**
  - **Based on our study of reservoir storage costs in the region**
  - **Based on there being no cross subsidy between electric customers and water withdrawers**

Water Withdrawals

- **Compensation calculation based on following assumptions:**
  - **Withdrawer uses 1 mgd for 365 days**
  - **Based on our study of reservoir storage costs in the region**
  - **Based on there being no cross subsidy between electric customers and water withdrawers**

Water Withdrawals

- **Two components of Compensation**
  - **Lost Energy Production**
  - **Reservoir Storage**

Water Withdrawals

- **Lost Energy Production**
  - **Removal of water upstream impacts all downstream dams**
    - **Domino effect**
  - **Energy budget model used to determine the amount of lost generation**
    - **based on the magnitude of the withdrawal**

Water Withdrawals

- **Reservoir Storage Cost**
  - Replacement Value of Storage
    - Storage is Leased to Withdrawer
  - 10% "reserve" fee on unused amounts in permit

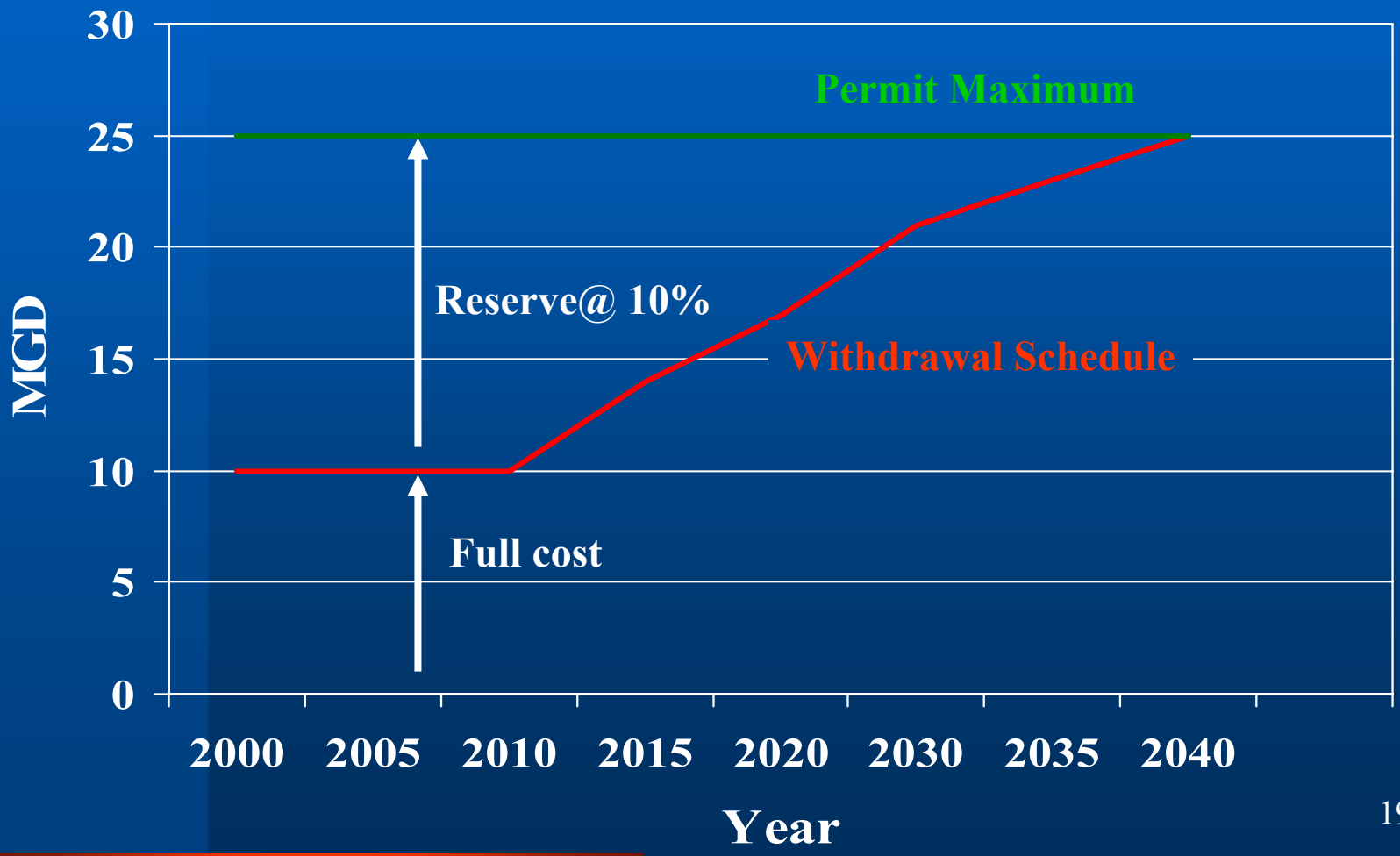
Water Withdrawals

- **Reservoir Storage Cost**
  - **Replacement Value of Storage**
    - **Storage is Leased to Withdrawer**
  - **10% "reserve" fee on unused amounts in permit**

Water Withdrawals

- **Reservoir Storage Cost**
  - Replacement Value of Storage
    - Storage is Leased
  - **10% "reserve" fee on unused amounts in permit**

Illustration of Reservation



Water Withdrawals

Compensation Policy Impacts

- Recovers costs for our rate payers
  - Withdrawers pay their fair share
- Encourages consideration of alternative water sources (reservoirs, wells, etc.)
- Promotes Conservation

Water Withdrawals

Questions on Water Withdrawals

E4 – Water Quantity, Water Use, and Water Withdrawals

- Water Withdrawals
  - Application Process
  - Compensation
- **Required Project Releases**
  - **Ecological**
  - **Recreational**
  - **Navigational**
- Drought Operations

Required Project Releases

Jordan Dam Ecological Flows

- July 1 thru March 31
  - 2,000 cfs minimum base flow
    - •Maintains wetted perimeter for aquatic species
- April 1 thru May 31
  - 4,000 cfs base flow 3 P.M. till 9 A.M.
  - 8,000 cfs pulse flow 9 A.M. till 3 P.M.
    - •Attracts migratory fishes upstream from Alabama River

Required Project Releases

Jordan Dam Ecological Flows

- June 1 thru June 15
  - 4,000 cfs base flow reduced by 67 cfs/day
  - 8,000 cfs pulse flow reduced by 133 cfs/day
- June 16 thru June 30
  - 4,000 cfs base flow reduction of 67 cfs/day continues to reach minimum base flow of 2,000 cfs
  - Pulse flow ceased
    - Slow flow reductions prevent stranding of aquatic species

Required Project Releases

Jordan Dam Recreational Flows

- June 16 thru October 31, weekends only
  - 4000, 6000, or 8000 cfs continuously from 11 A.M. till 5:00 P.M., rotating thru weekend days

- Special Releases up to 10,000 cfs
  - Memorial Day, Independence Day, and Labor Day Weekends
  - Special three day civic event

Required Project Releases

Jordan Dam Ecological and Recreational Flows Can be impacted by Flood (increase) or Drought Conditions (decrease)

Required Project Releases

Navigational Flows

- Support commercial navigation
- Reasonable rules and regulations of the Secretary of the Army
- Requirements are different for each river system

Required Project Releases

Navigational Flows

- Smith Project expected to contribute 245 cfs
- Coosa (Tallapoosa) Project releases
  - Minimum of 32,480 cfs/7-day
  - Minimum of 8,000 cfs/3-day
  - If 7-day release exceeds 50,000 cfs, reduced no faster than 1,700 cfs per day

Required Project Releases

Questions on Required Project Releases

Drought Operations

- Water Withdrawals
  - Application Process
  - Compensation
- Required Project Releases
  - Ecological
  - Recreational
  - Navigational
- **Drought Operations**

Drought Operations

- **Effects classified into three broad categories:**
  - **Ecological impacts**
  - **Electric generating capacity**
  - **Recreational opportunities**

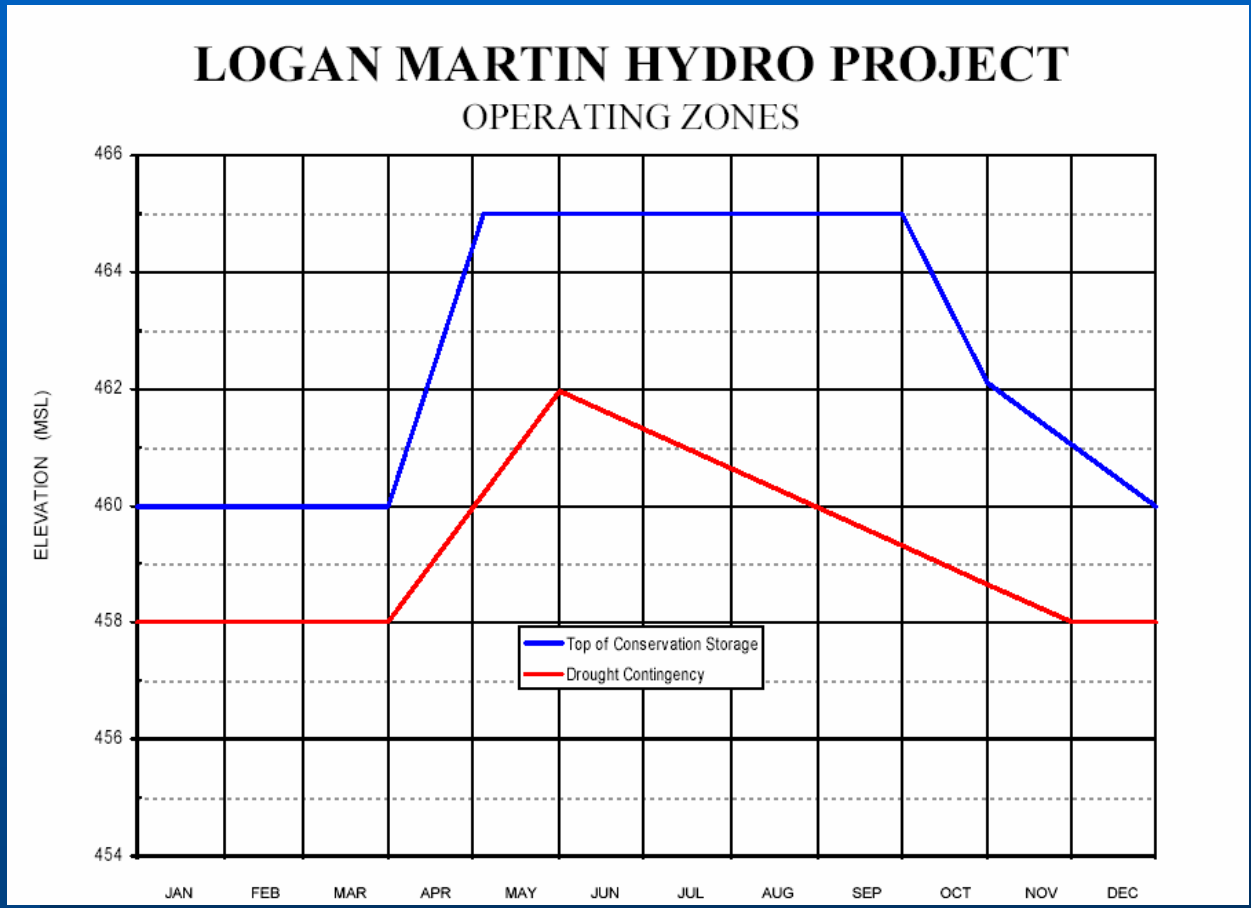
Drought Operations

- **Ecological Impacts**
  - **Increase in BOD, reduced DO**
  - **Surface Temperature Increases**
- **Electric Generation Impacts**
  - **Decreased peaking capability**
- **Recreation Impacts**
  - **Lower reservoir levels can result in reduction in recreation opportunities**

Drought Operations

- **APC is committed to maintaining the average day flow of 4,640 cfs**
  - **APC will initiate drought operations when inflows approach required minimum releases**

Drought Operations



Drought Operations

Questions on Drought Operations

E4 – Water Quantity, Water Use, and Water Withdrawals

Questions on E4?