ECONOMICS OF WATER PRICING

PRESENTED BY

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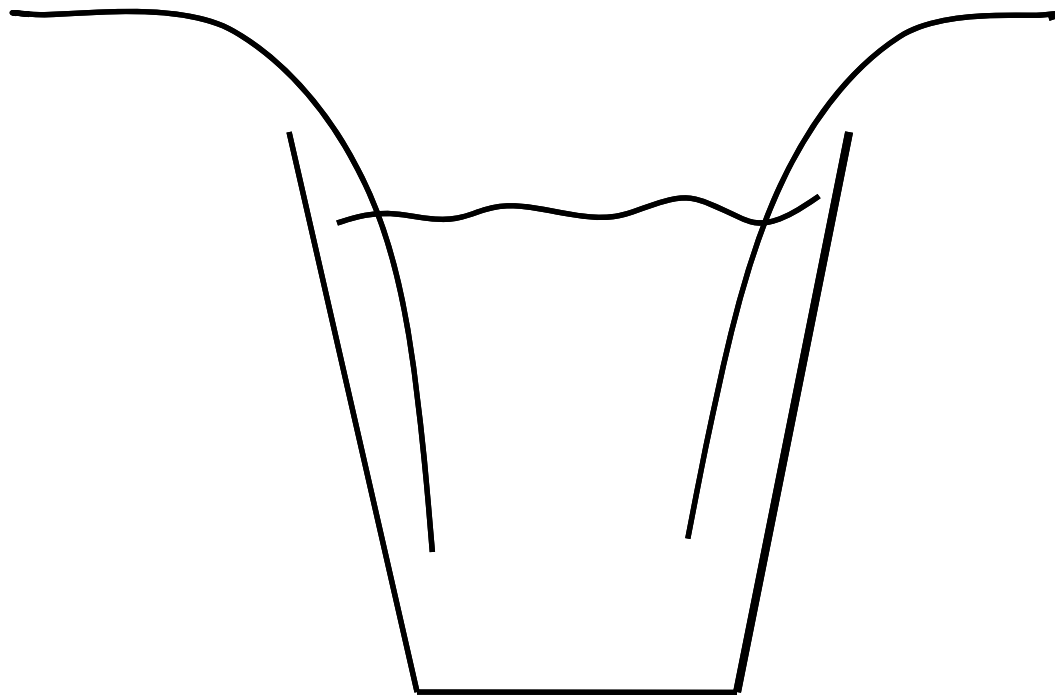
AT

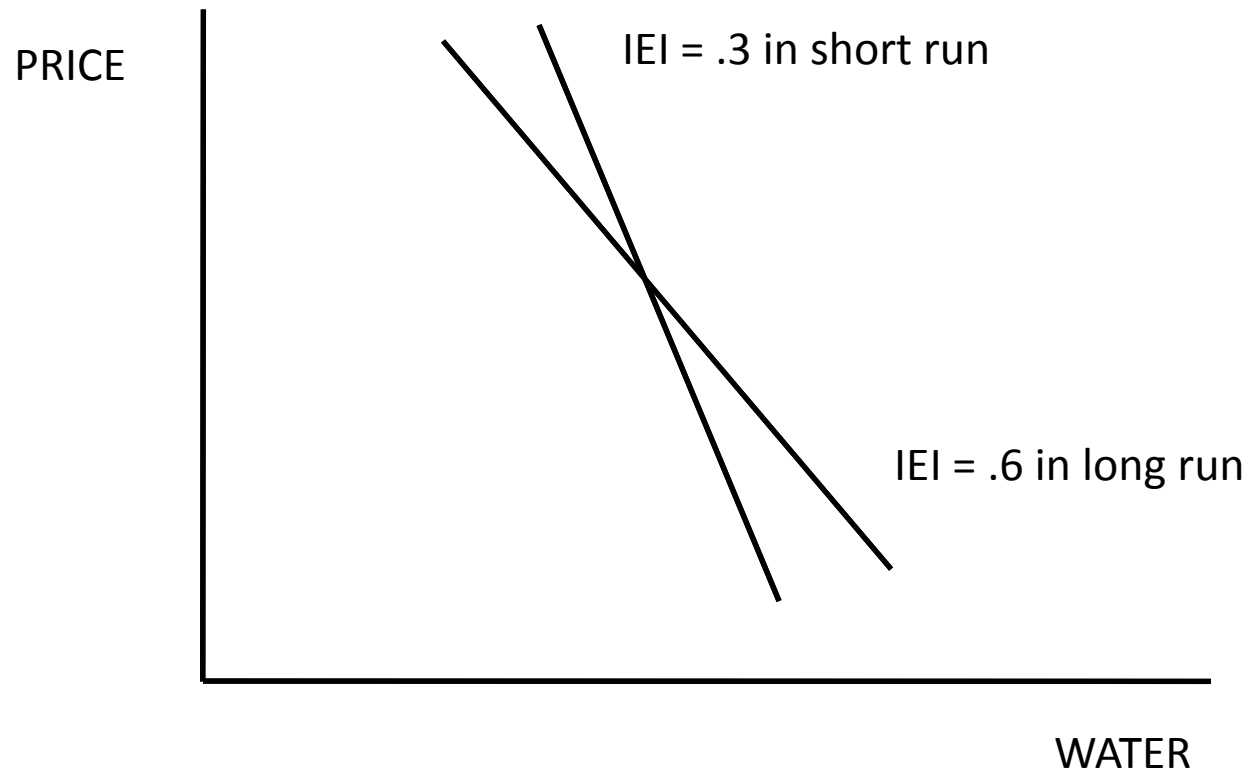AMERICAN WATER RESOURCES ASSOCIATION

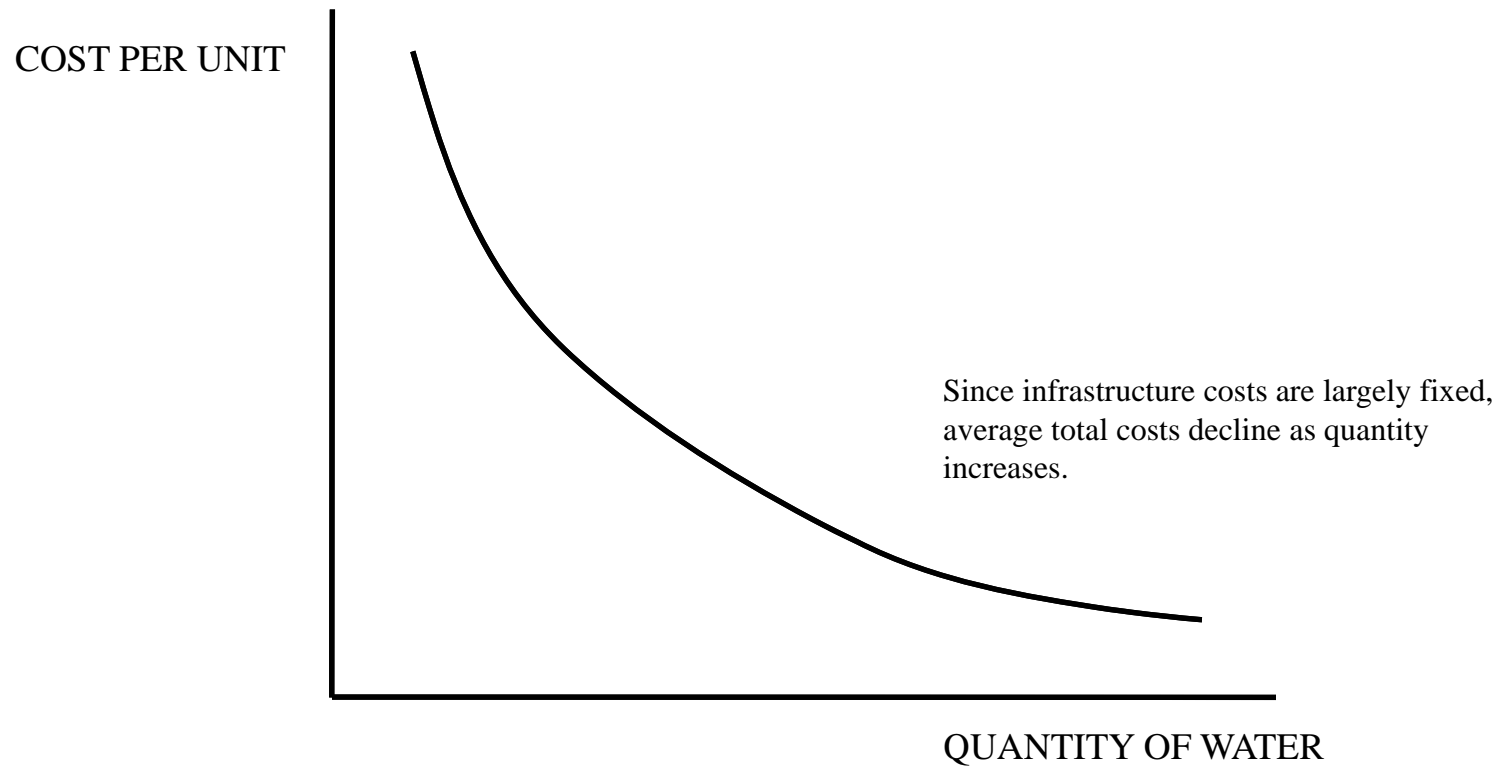MANAGING WISCONSIN'S URBAN WATER RESOURCE
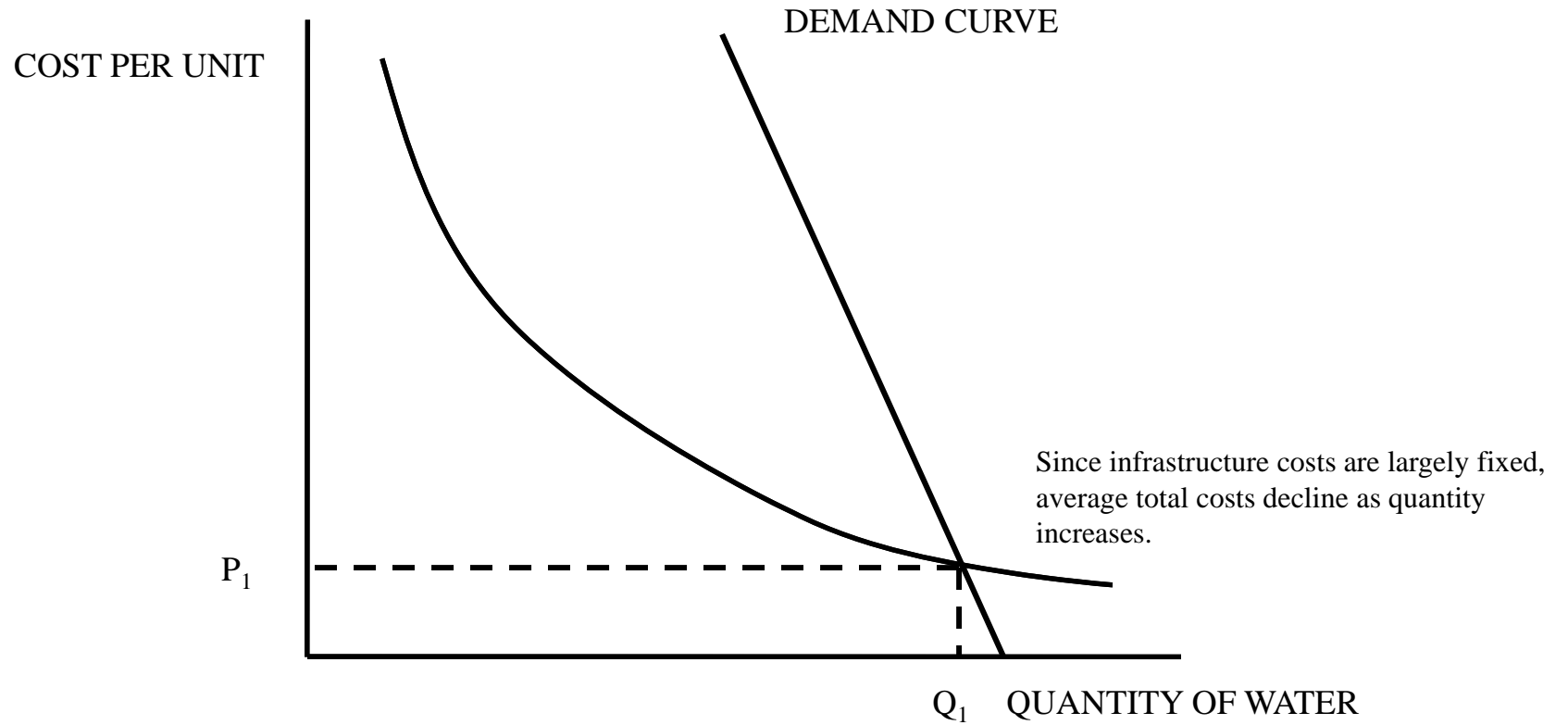
MARCH 7, 2013

THE TRAGEDY OF THE COMMON MILK SHAKE

DEMAND ELASTICITIES

PRICE

IEI = .3 in short run
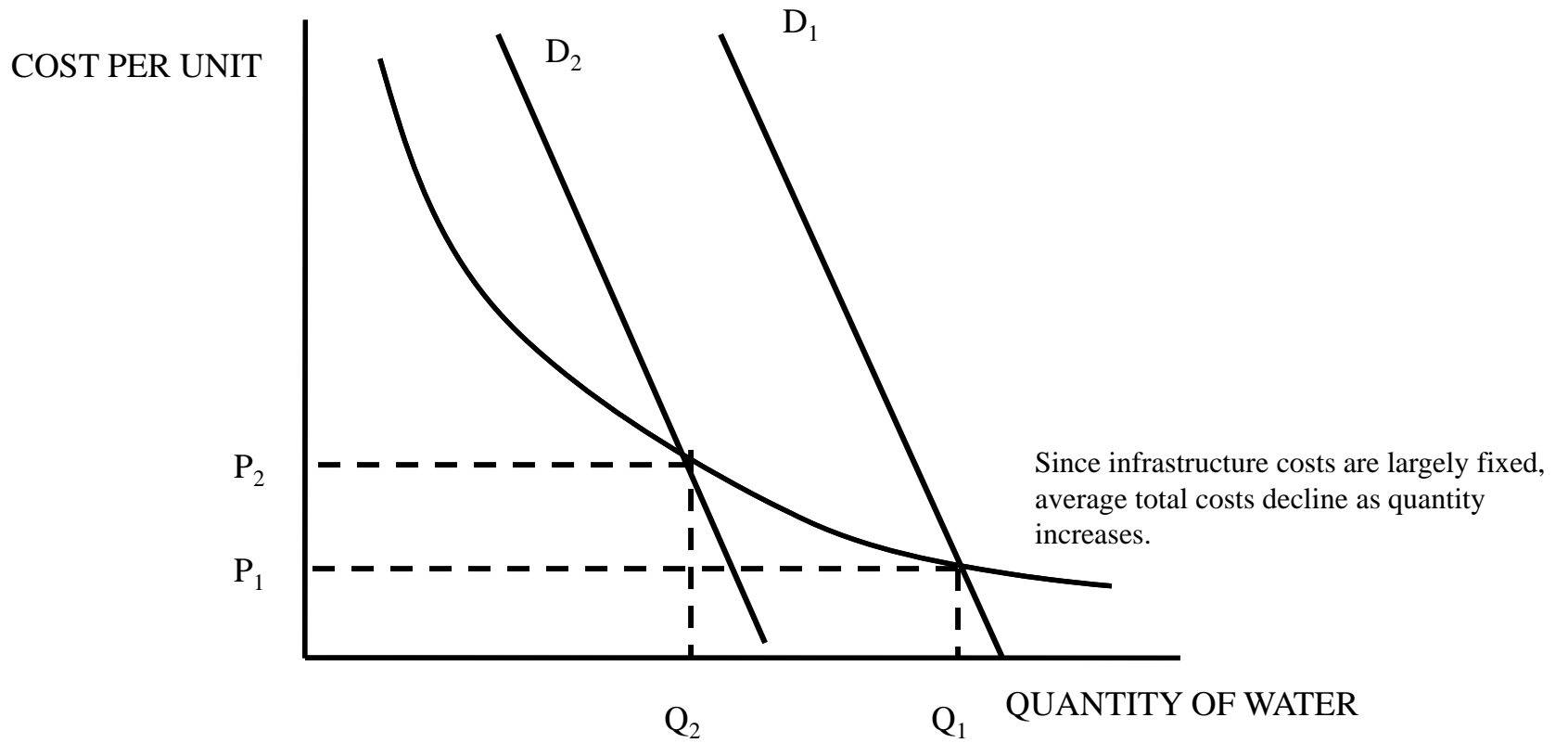
IEI = .6 in long run

WATER

AVERAGE INFRASTRUCTURE (HISTORICAL) COST

COST PER UNIT

Since infrastructure costs are largely fixed, average total costs decline as quantity increases.

QUANTITY OF WATER

DEMAND INTERSECTING AVERAGE COST

COST PER UNIT

DEMAND CURVE

Since infrastructure costs are largely fixed, average total costs decline as quantity increases.

P_1

Q_1 QUANTITY OF WATER

SHIFT DEMAND TO LEFT

COST PER UNIT

D_1

D_2

P_2

P_1

Since infrastructure costs are largely fixed, average total costs decline as quantity increases.

Q_2

Q_1

QUANTITY OF WATER

CONTRASTING AVERAGE INFRATRUCTURE COSTS WITH MARGINAL USER COSTS

$/UNIT OF WATER

MARGINAL USER COSTS

AVERAGE INFRASTRUCTURE COSTS

QUANTITY OF WATER
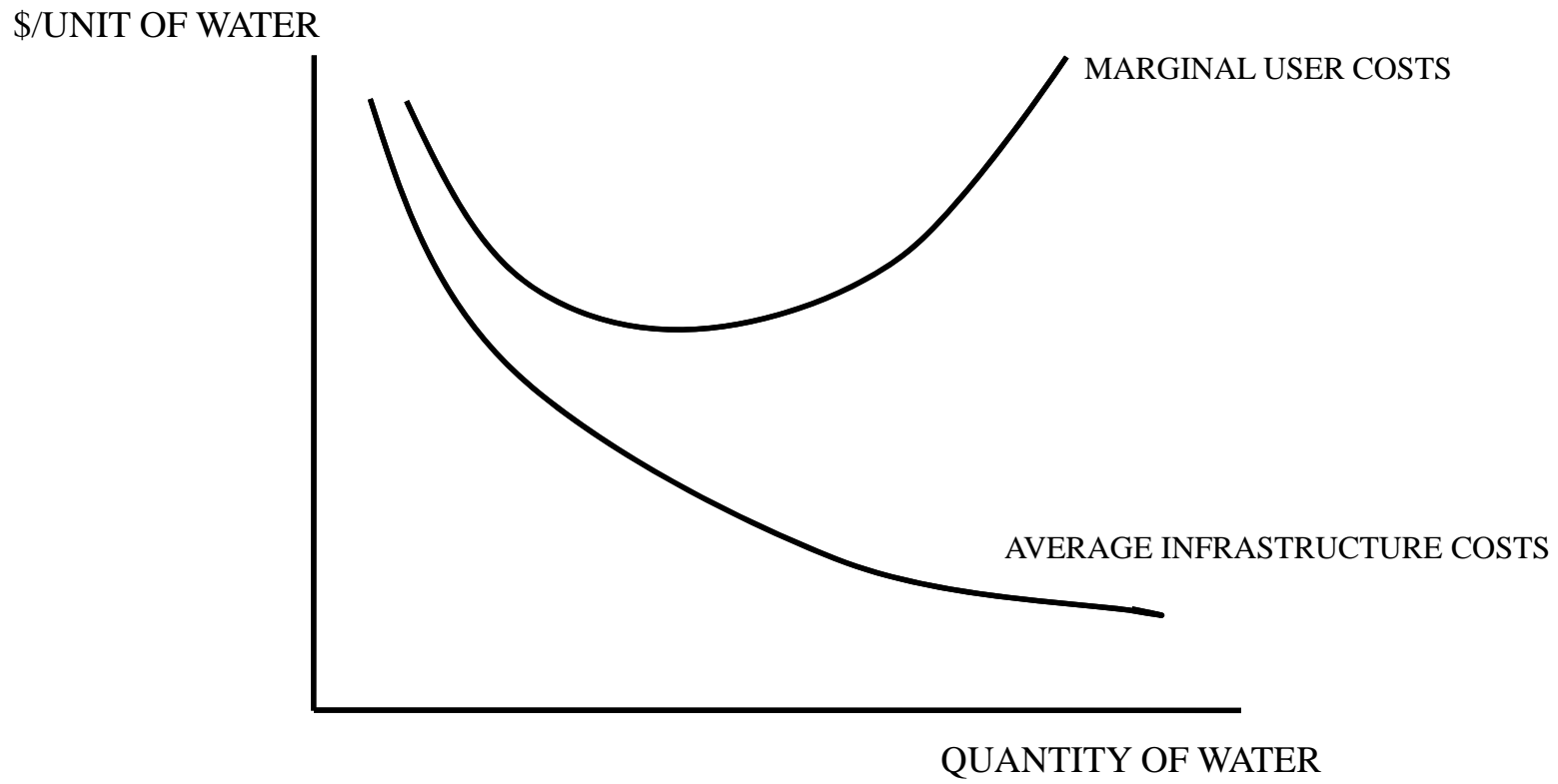
- LRMC (aka MARGINAL USER COST) = MARGINAL COST OF SUPPLY TODAY + MARGINAL COST IMPOSED TODAY ON OTHER USERS IN THE COMMON POOL + MARGINAL COST IMPOSED ON FUTURE USERS DUE TO DEPLETION TODAY.

- Note: Some of LRMC is retrospective while some is prospective. That is, some is required to recover costs incurred in the past while some is required to compensate the future user for the increased cost they will incur due to water use today. This prospective part is often called a "royalty paid to the future."

MARGINAL VERSUS AVERAGE COST PRICING
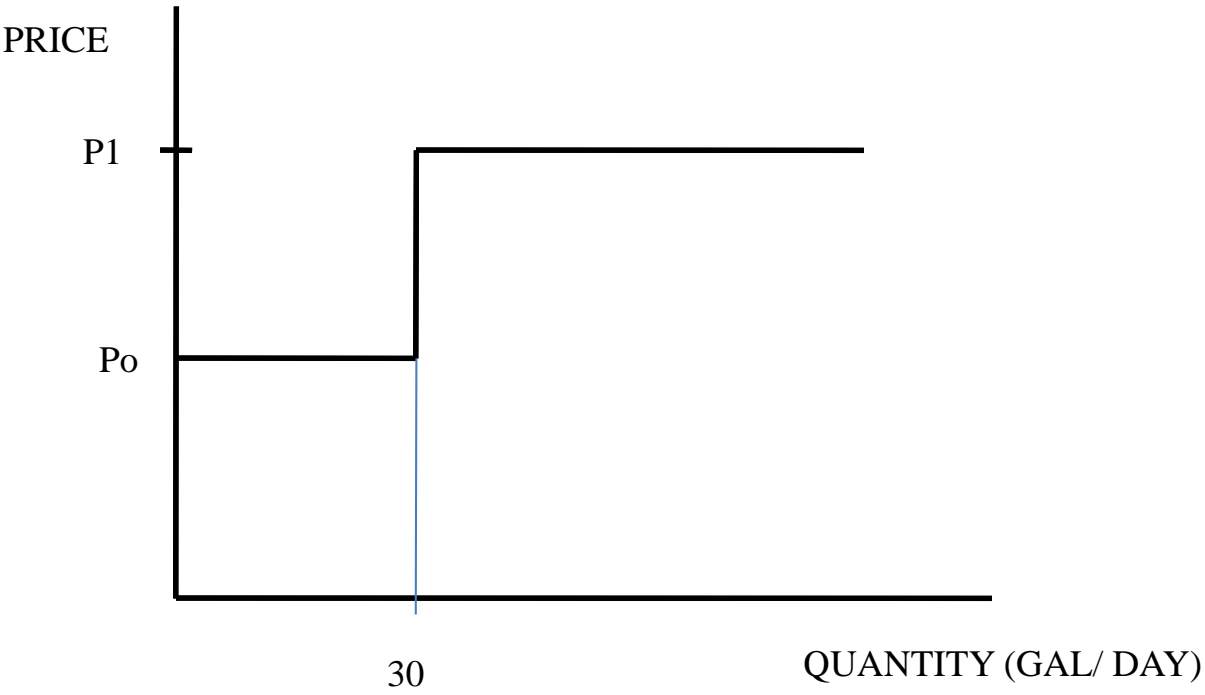
DOLLARS PER
UNIT OF WATER

DEMAND

MARGINAL USER COSTS

G

P_{MC}

B

F

C

AVERAGE INFRASTRUCTURE COSTS

P_{AC}

A

Q_{MC}

Q_{AC}
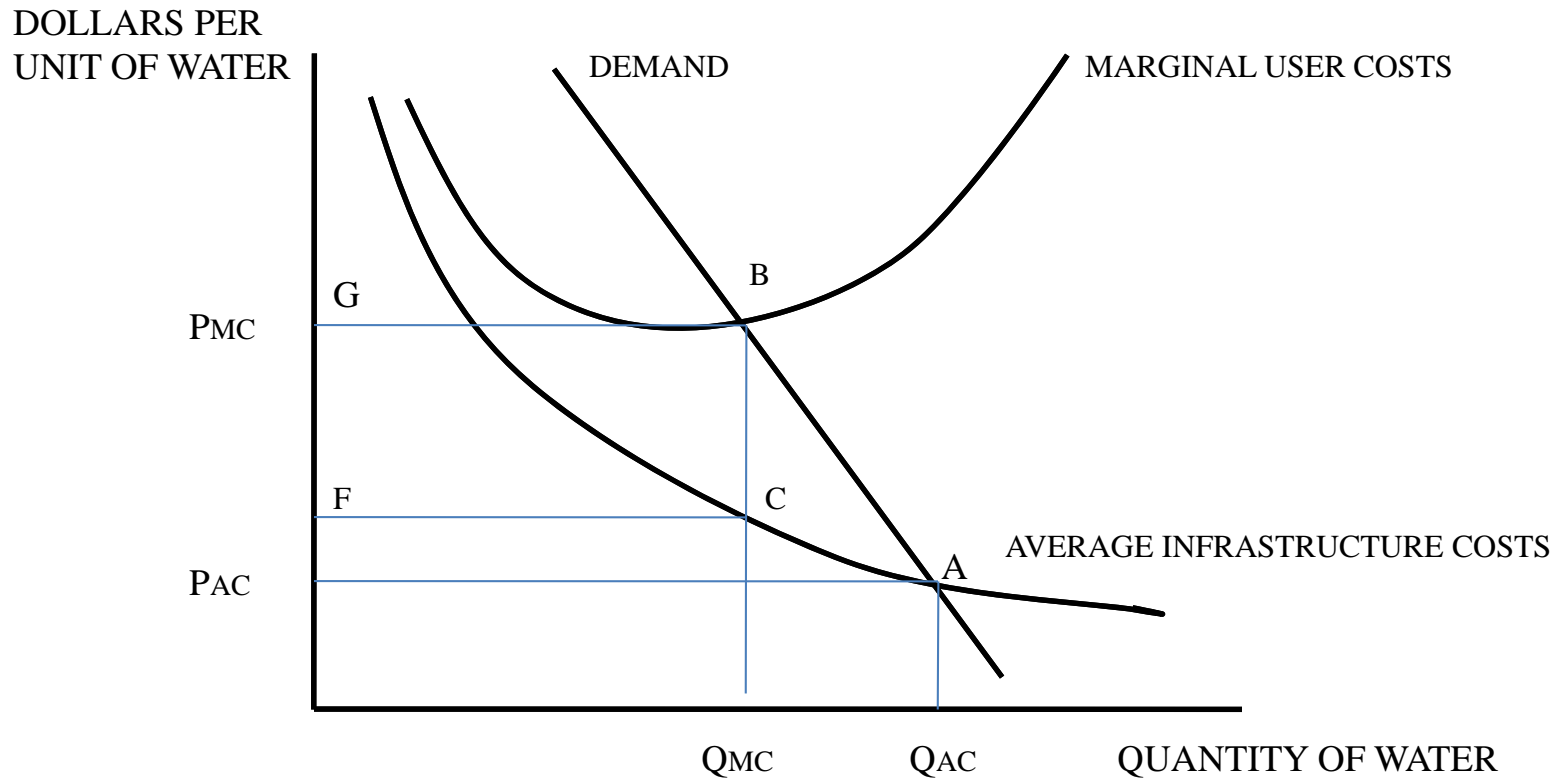
QUANTITY OF WATER

DOLLARS PER UNIT OF WATER

PRICE PATH ENCOURAGING EARLY INVESTMENT IN WATER CONSERVING CAPITAL EQUIPMENT
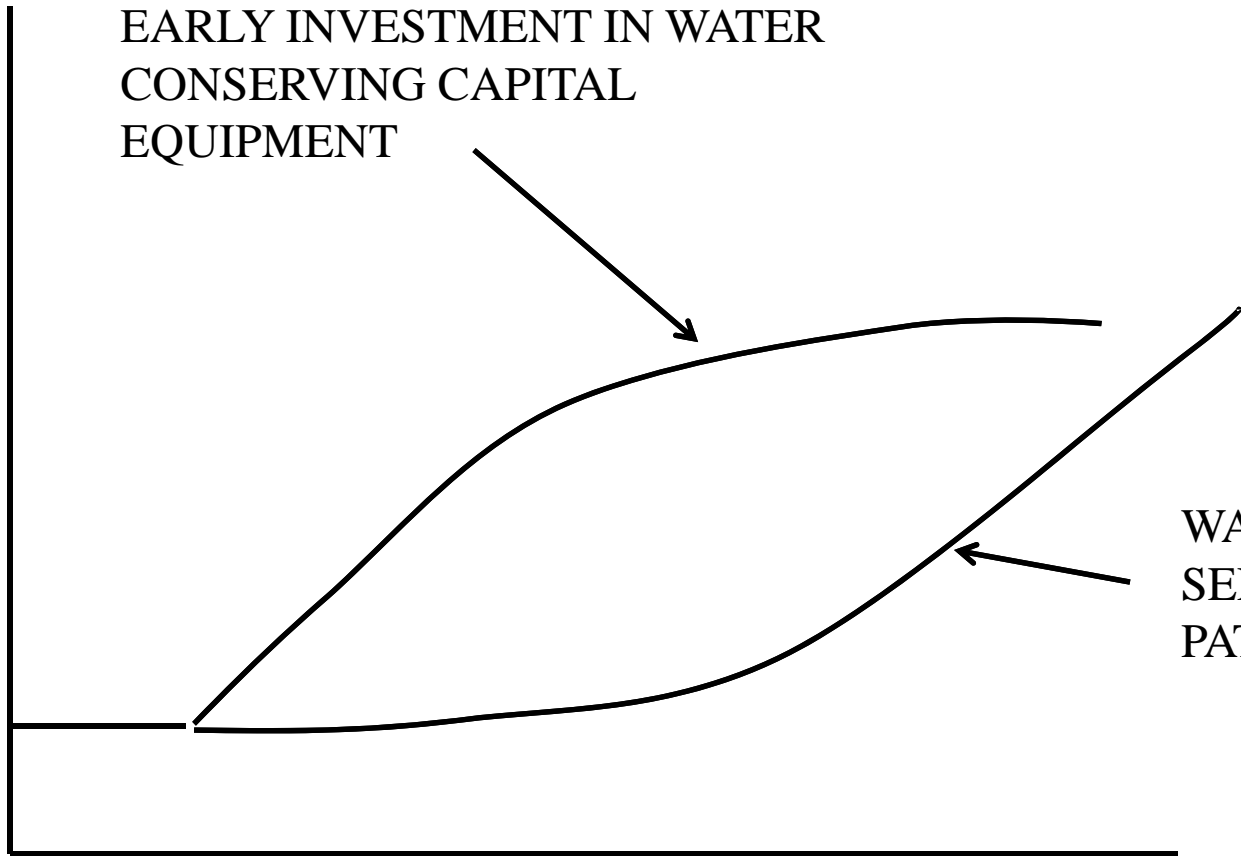
WAIT AND SEE PRICE PATH

TIME

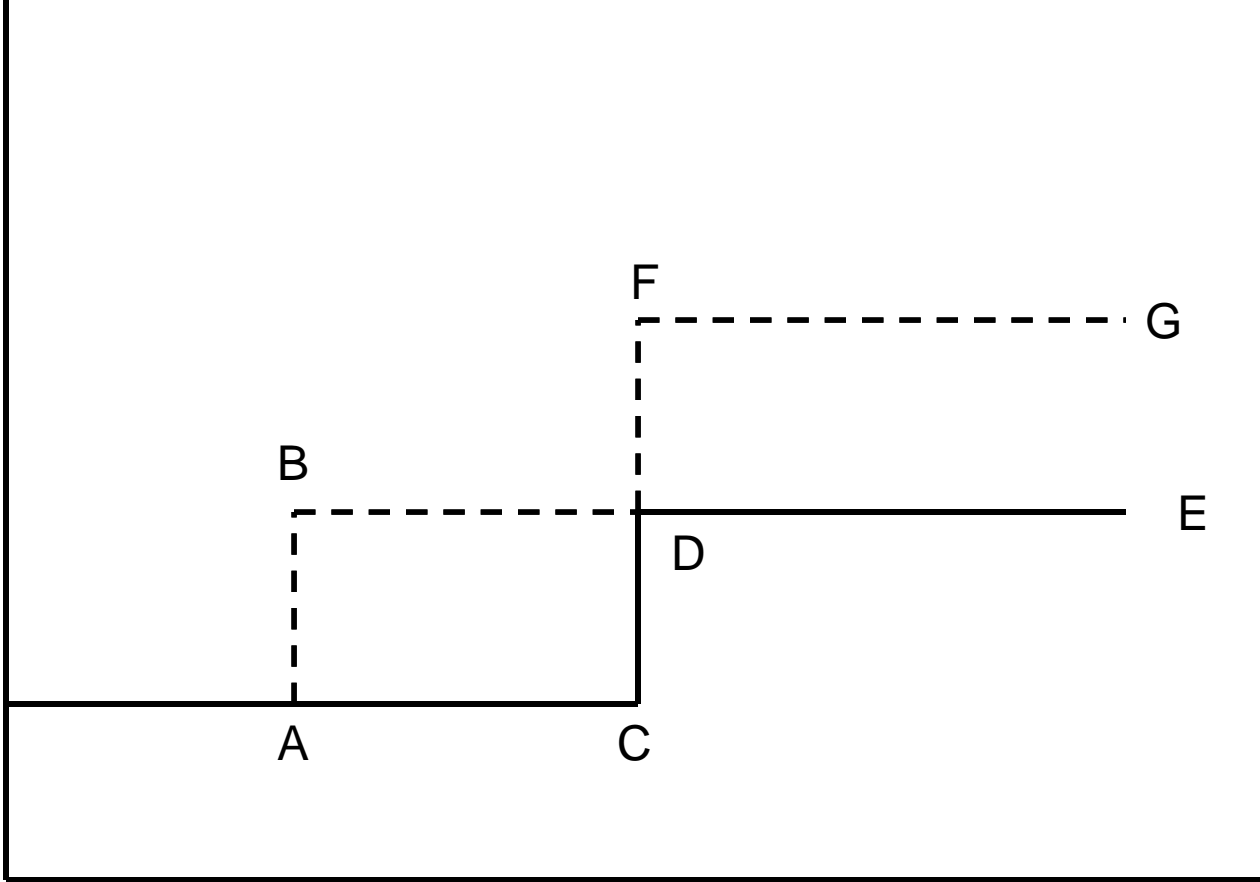# INCREASING BLOCK PRICING

PRICE

P1

Po

30

QUANTITY (GAL/ DAY)

CONSUMER REACTION TO INCREASING – BLOCK PRICING
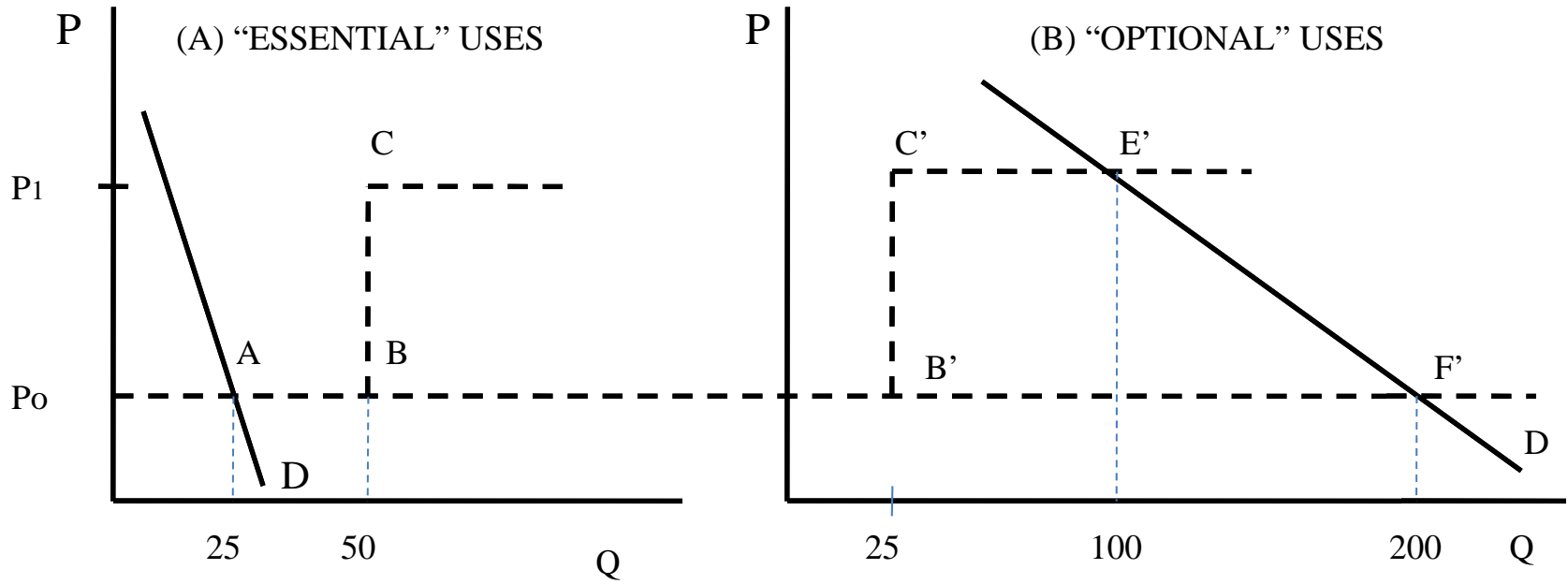
PRICE

QUANTITY FLOW
(GAL/DAY)

PRICE

F'
G'

G
F

B

E
D

A C

QUANTITY FLOW
(GAL/DAY)