

**Exam II**  
(100 points)

- (15 pts) 1. What's the equivalent single price of an appliance rebate program having the following character? When a consumer buys a qualifying "high efficiency" washing machine, the city will pay the buyer \$50 immediately; water savings are expected to be 600 gallons per year per appliance for 10 years. The city has \$10,000 to allocate to this program, and it expects that this money will be claimed quickly. The discount rate is 4%. Expectations are that one-half of this money will go to people who would have purchased a high efficiency model without the rebate. The city utility wants you to compute this ESP so it can be compared to the ESPs of other available water policies.
- (15 pts) 2. State whether you support or oppose the following statement. After developing arguments on both sides, explain why you support or oppose.  
 "Economic metrics such as NPV will have less relevance for future federal water project decisions under the Principles & Requirements (P&R) than such metrics had under previous federal rules for cost-benefit analysis."
- (20 pts) 3. Describe the 3 nonaccounting opportunity costs that might enter rates and the 3 primary pricing tools. If prices are optimally established, which of the opportunity costs might affect which of the pricing tools and how/why?
- (25 pts) 4. Administration of surface water markets commonly includes a step whereby water users external to a proposed trade are given the opportunity to lodge protests.  
 Why is this done? Nonwater markets do not do this, so be specific about the possible reasons for inviting third parties into a market process. (8 pts)
- Ground water marketing is relatively novel and not as developed as surface water markets. Should a role for third parties be developed for these markets too? Should all aquifer users be treated as equivalent third parties in every exchange? Provide explicit reasons for your responses. (17 pts)
- (25 pts) 5. You are a manager within a stable, water-using company (named DAD) that expects to experience no change in future demand for its products. Your water is self-supplied using a permitted water source from which you pump and treat water. It costs a constant \$25 per unit of water for every unit of water used. DAD's water demand is  $w = \left(\frac{750}{p}\right)^2$ . The company owns 1200 units of transferrable water rights that it cannot exceed when pumping. The company's owner wants your response to the following: "I want to lease one-third of our water rights to my daughter's company. It's important to me that DAD break even on this lease – experiencing neither a loss nor gain. How much money I should ask her to pay? Explain all this stuff to me using whatever tools you have."