



**Small Business Economic Impact Statement
Proposed Columbia River Water Management Program Rule**

Department of Ecology

December 2004

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Small Business Economic Impact Statement Proposed Columbia River Water Management Program Rule

Department of Ecology
December 2004

I. Executive Summary

The Department of Ecology (Ecology) is proposing a new Chapter 173-565 WAC and amendments to Chapters 173-531A and 173-563 WAC. The purpose of Mainstem Columbia River Water Management Program (Chapter 173-565 WAC) is to implement a state water management program for the Mainstem Columbia River to facilitate water allocation decisions by the state. The purpose of the program is to:

- Provide a framework for authorizing new and reliable uses of water from the Columbia mainstem in support of population growth and economic development; and
- Reduce the risks to fish by dedicating water to instream uses and releasing such water into the river at times and in ways that maximize the benefits to fish.

This Small Business Economic Impact Statement (SBEIS) is provided consistent with the requirements of RCW 19.85, the Regulatory Fairness Act. If the rule has its intended effect, Ecology expects that this proposal will result in benefits to most affected businesses. However, under RCW 19.85 Ecology must review business costs associated with this proposal, regardless of the gain to businesses, to determine whether costs are disproportionately higher for small businesses in comparison to large businesses.

Conclusion: If this proposal imposes a net cost on a few businesses, then the impact is likely to be disproportionately greater for small businesses than for large businesses when measured on a cost per employee basis.

Under RCW 19.85 Ecology must reduce costs using methods listed 19.85.030 (3).

- Conclusion: The proposal itself could be interpreted as a cost reducing method under RCW 19.85.030 (3)(f).
- Further cost reductions are reviewed in section IX of this SBEIS

Note: The Department of Ecology will be accepting comments on this Small Business Economic Impact Statement during the formal public review portion of the rule-making process. Further information about how to provide input regarding this document and the rule proposal itself are available at: <http://www.ecy.wa.gov/programs/wr/cr/crhome.html>

Due to size limitations relating to the filing of documents with the Code Reviser, the SBEIS that was filed with the CR-102 form and proposed rule language did not contain the appendices. This version of the document does include the appendices that further explain Ecology's analysis.

II. Intent of the Rule Proposal

The rule proposal is intended to provide a more timely and affordable way to secure water from the Columbia River for water right applicants. It is also intended to reduce the risks to salmon and other aquatic species associated with new water withdrawals. Under current administrative requirements it is unlikely that businesses will obtain water from the mainstem of the Columbia River. If the rule proposal has its intended effect, businesses seeking water rights will experience gains.¹

Through conservation, storage, water management, and acquisition, Ecology will acquire 728,000 acre feet of water, 486,000 of which would be provided as mitigation for out-of-stream uses over the 20 year life of the rule proposal. This allocation of water to environmental, agricultural, municipal, and industrial uses can be expected to both save resources and shift resources from one set of uses to another.

III. Method and Baseline Background

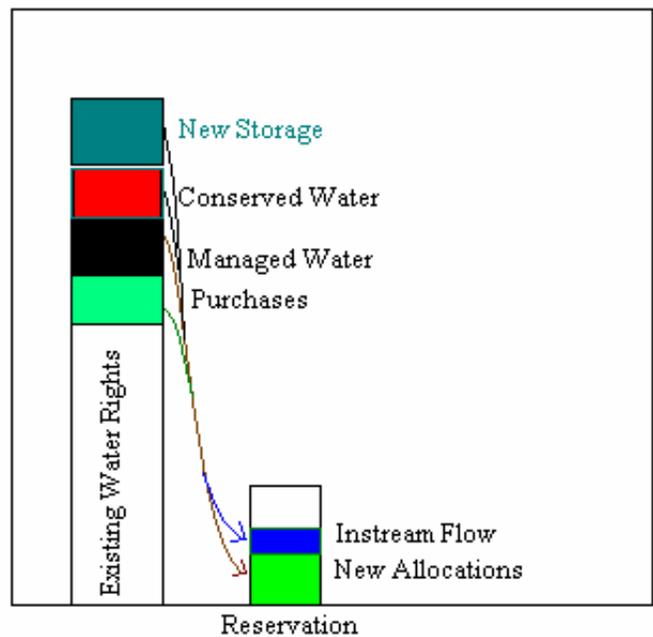
3.a Method

An SBEIS is required if costs are imposed on businesses. In this case it is clear that the existing set of rules makes the cost of obtaining water high through costs associated with potential litigation and delayed action by the state. As a result of facilitating timely water rights decisions and reducing the risk of litigation once decisions have been made, the rule proposal should reduce costs for most businesses.

It may be, however, that some businesses experience net cost increases. This analysis adopts a conservative approach and the possibility of increased costs is evaluated.

It is assumed that the maximum cost imposed by the rule would be the mitigation payment options that are provided to applicants for the various classes of water rights. The assumption is based upon the economic principal that individuals will seek to minimize the costs associated with a particular action. Therefore, individuals will choose the mitigation payment option if the costs associated with the other options are thought to be higher than the amount of the payment. As a result, the mitigation payment option establishes an upper bound on the costs to businesses associated with the proposed rule. For this reason, the cost of the mitigation payment option is the cost evaluated by the SBEIS.

3.b Baseline



Columbia River Water Rights

¹ Economics of the Columbia River Initiative: <http://www.ecy.wa.gov/programs/wr/cr/criconrev.html#uwecon>

The baseline for this SBEIS is grounded in Ecology's experience administering water rights decisions for the Columbia River. Based upon this experience Ecology has concluded that businesses are highly unlikely to be able to obtain water rights without significant costs due to lengthy delays, litigation, and the uncertainty associated with court-based outcomes.²

The expectation of a gain, for businesses that need water, in Section IV below is based on the fact that Ecology will be able to implement the rule proposal.

IV. The Expected Impact of the Rule Proposal

Reducing the costs derived from legal uncertainty can add value for a business. Experience from the last 10 Columbia River Mainstem water right applications, which were processed by Ecology, indicates that the existing rules impose business costs due to long waiting periods and expensive litigation. If the proposal provides a more timely and affordable way to get water it will generate benefits for businesses receiving water. Given this reality, Ecology has concluded that the proposal itself is a cost reducing method as defined by RCW 19.85.030 (3)(f).

V. Potential Gains and Costs

Changes to the law [proposed executive request legislation: *Management of water resources for the mainstem of the Columbia River*] establish the basis for the management program being proposed in the draft rule. However, no allocation under the proposed management program could occur without the rule proposal. Thus both gains and costs discussed and evaluated in this SBEIS accrue to the rule proposal.

The rule proposal is likely to generate net benefits for business applicants.

Agriculture, municipal, and industrial users are expected to experience direct gains through receiving new water allocations. Businesses dependent on fisheries may experience some gains through fish population impacts as a result of water added to the river by the proposed program.

VI. Businesses which Gain

In so far as the State is successful in obtaining water for allocation, the benefit to businesses is expected to outweigh the cost to businesses because there will be a greater probability that businesses that apply for a water right will receive one in a timely manner. The following types of businesses are expected to gain from the Program.

- a. Businesses providing water through conservation.
- b. Businesses with currently interruptible rights.
- c. Businesses with permits issued in 2003
- d. Businesses obtaining new water rights.
- e. Businesses involved with fisheries, although the potential gain is uncertain.

² AN EVALUATION OF PROBABLE BENEFITS AND COSTS, For The Proposed Rule to Establish the Columbia River Water Resources Management Program, Chapter 173-565 WAC, Section 2 HISTORY AND BASELINE.

4.a Businesses providing water through conservation

Conservation through the reduction of conveyance losses, changes to irrigation measures, or changes to municipal water systems, are designed to increase the efficiency of these systems. The payment made by the state for the water yielded from these investments may benefit those providing the water.

Under the rule proposal, the new or additional water conservation undertaken by existing water right holders is voluntary. Given this, no conservation will take place unless it is cost effective. Thus, in order for conservation transfers to occur, there must be a benefit to an existing water right holder. Given that participants are willing sellers, this conservation purchase program would generate gains to those who conserve the water.

4.b Businesses with interruptible rights - drought permits

Part III of the proposed rule is expected to benefit mainstem Columbia River interruptible water right holders who want to obtain a drought permit. Water right holders would be expected to evaluate costs and net values before deciding to apply for a drought permit. In order to make a decision, businesses must consider the cost and gain from receiving the drought permit versus other options available to them. Applying for the drought permit includes metering (consistent with existing state law and 173-173 WAC) and the following options:

Option 1	<ul style="list-style-type: none">• Installing BMPs• Adjusting existing interruptible water rights on the Columbia River mainstem based on efficiency gains or recalibration• Submitting all their existing water rights for review and recalibration
Option 2	Paying \$10 per acre foot for mitigation
Option 3	Providing a mitigation proposal

Businesses also have options, with associated dollar values, that are not provided by the proposed rule, which they will consider in addition to the cost of applying for a drought permit:

- The cost of acquiring a private contract for drought year water
- The cost of constructing private storage
- The change in the value of net product or crop value attributable to the change in the supply of drought year water

As a result, the drought year permit options provided by the rule will only be selected if (1) the net value of the product will cover the cost and (2) there are no less expensive options available.

All options require the user to measure and report water use as required under proposed executive request legislation: *Management of water resources for the mainstem of the Columbia River* and WAC 173-173. These provisions require businesses to report water use on request. The proposed rule requires reporting to occur on an ongoing basis, and therefore may involve a small cost such as copying the records and sending them to Ecology.

4.b.1 *Best Management Practices (BMPs)*

The BMP option is only available to those who have an existing interruptible water right. The cost of the variety of options available within BMPs is in the matrix in Appendix 2. According to many sources, a significant number of businesses already have BMPs in place. These businesses will have at or near zero BMP-related costs necessary to receive a drought permit. The cost of choosing Option 1 will be minimal for these businesses. Given the costs associated with installing BMPs,³ it is unlikely that a business would choose Option 1 over Option 2 if they do not currently meet the BMP standards.

The following considers the relevant costs associated with BMPs for agricultural and municipal/industrial water users.

Irrigation

Based on informal discussions with Columbia River irrigators Ecology anticipates that most irrigators have BMPs in place already. Over 97% of the 334 interruptible water right holders have irrigation as either their indicated use or as a component to their use (see Appendix 3). As a result of the proposed rule agricultural water users may have the option of converting their acreage to perennial plants that might have been precluded by an interruptible water supply. Alternatively, they may gain the net value of an annual crop during a dry year.

Gathering data for submitting the existing water rights for review is time consuming. Some may hire a professional to assist with the application in order to reduce the potential reduction of the existing water right. This service would involve some costs to an applicant.

Water saved through BMPs must be returned to the river system. The value of the long term flexibility provided by the water foregone is also a potential cost of obtaining the drought water. Again, it is unlikely that companies will choose to implement Option 1 if the cost is over \$10 per acre foot per year because Option 2 is available.⁴

Businesses that need to install BMPs face costs that vary widely based on the systems chosen. For example, sprinkler or drip irrigation system costs may range from \$195 to \$979 per acre. Some of the BMPs are new requirements and some are not (see Matrix in Appendix 2). If the annual cost is higher than the cost of mitigation, then the irrigator is likely to shift to mitigation.

Irrigators will also factor in any productivity increases that can be expected as a result of compliance with the BMP standards. The productivity of acreage may increase with BMPs. Given a lack of available data regarding the potential productivity gain, it is not estimated.

Municipal and Industrial

Most developers installing residential water systems on over 100 acres will have more than 15 residences attached to the system.⁵ As currently proposed, the Department of Health efficiency

³ See appendixes 2 and 4.

⁴ Based on Columbia Basin Project Water from Economics of the Columbia River Initiative: <http://www.ecy.wa.gov/programs/wr/cr/cricreconrev.html#uwecon>

⁵ Cities may pass on the costs of zone meters.

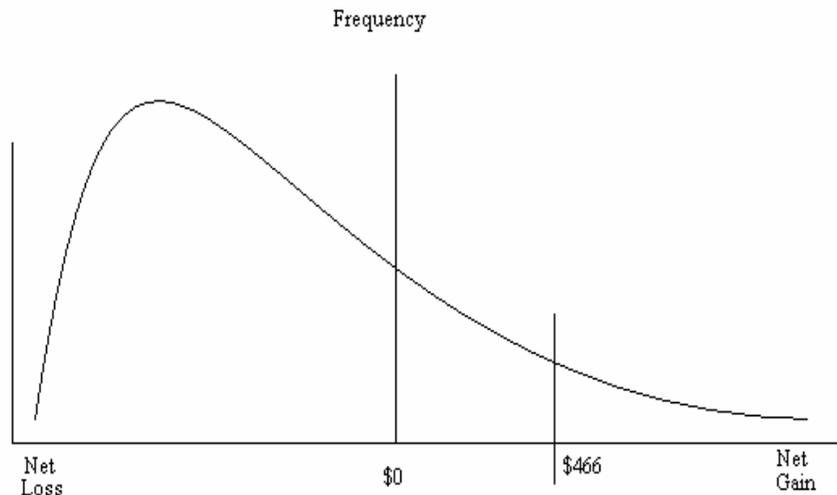
requirements are more stringent than the BMPs proposed by Ecology in this rule. Thus developers of landscapes such as parks or golf courses are more likely to experience costs associated with best management practices. New systems would not have conveyance losses but older systems can be expected to have conveyance losses over 5%.⁶ Depending on the age of the system, repairs can be as expensive as new installation.

4.b.2 Mitigation Fee Option

Alternatively, a business can pay \$10 per acre foot for mitigation of water use, based on the amount of water used in the prior year.

Some businesses may choose not to have a drought permit if they have not installed BMPs, can't afford the \$10 per acre foot of water per year, or find the mitigation planning too expensive. Often for agricultural interruptible water right holders the BMPs will be less expensive than the other options available to them. The irrigator's present value of paying \$10 per acre foot for mitigation over a 26 year period when 2.5 acre feet per acre per year are needed for one acre of crop is \$466 if the irrigator pays 6% on business loans.

In conclusion, for a business justify the expense of installing BMPs the economic value of the water used would have to be quite high. Businesses with low values for the water are likely to choose another option or retain their interruptible water right.



to

4.b.3 Mitigation Proposals

Businesses currently have the option of providing mitigation in order to comply with Endangered Species Act (ESA) issues. Developing the mitigation proposals has in the past often required professional and engineering services in addition to the cost of water and/or capital and labor expenses. Mitigation can be any project or acquisition that offsets the fishery impact of the withdrawn water. These are not new costs, and therefore are not included in this analysis, since companies have been required to propose mitigation in the baseline operating environment..

In conclusion, for a business to justify the expense of a mitigation proposal the economic value of the water used would have to be high and the cost of the mitigation proposal would have to be lower than the cost per acre foot per year calculated by Ecology. Businesses with either low values for the water

⁶ Dave Reich, Ecology, 8/2/04.

or high costs for a mitigation proposal are likely to choose another option or retain their interruptible water right.

4.b.4 Choice of \$10 per acre foot per year as cost basis

Given the discussion above, the maximum cost incurred will be \$10 per acre foot per year for the drought permit. This cost is used to calculate the ratios required by RCW 19.85.

4.c Businesses with 2003 Permits – Obtaining Mitigation Water

Part IV of the proposed rule should reduce the uncertainty regarding obtaining mitigation for water right records of decision and permits that were issued in 2003. If sufficient water is obtained through conservation, then the rule proposal may also benefit these water right holders in so far as they still require mitigation. The mitigation proposal option includes replacing existing mitigation proposals with \$10 per acre foot payments in exchange for access to mitigation water provided by the proposed state program. The amount of the mitigation payments will be set by the state after taking public input on the rule proposal. These businesses will have cost and gain considerations including:

- The cost of acquiring mitigation water in the private market;
- The cost of constructing private storage for use in April through August; and,
- The value of net product or crop value attributable to the change in the supply of water

Thus the mitigation fee option in the rule proposal will only be selected if the net value of the product will cover the costs imposed under the rule and if there are no less expensive options available to the permit holder.

4.d Businesses Obtaining New Water

Assuming that sufficient water is obtained through implementation of the state’s water acquisition program, then Part V of the proposed rule will benefit Columbia River mainstem water rights applicants. Parties benefiting from the rule proposal include existing municipal, industrial, and agricultural applicants. If the rule does not result in adequate net benefits to an applicant for a new water right, then they would be unlikely to use it.

Requirements associated with the new water rights include the following elements of a mitigation plan:

Existing Requirements: ⁷	New Either – Or Requirements
<ul style="list-style-type: none"> • Metering • Achieving reasonable efficiency 	<ul style="list-style-type: none"> ○ Providing mitigation ○ Paying up to \$40 per acre foot for mitigation

⁷ The requirements are not new costs. Metering is required in WAC 173.173. Reasonable efficiency is required in ECOLOGY v. GRIMES, 121 Wn.2d 459, 852 P.2d 1044, “[10] Waters - Water Rights - Appropriation - Beneficial Use - Reasonable Use - Waste - What Constitutes. For purposes of appropriated water rights, the amount of water that constitutes a "reasonable use" is limited by the doctrine of waste. Water usage must be reasonably efficient and economical in light of other present and future demands upon the source of supply.” Downloaded 11/05/04 from <http://www.ecy.wa.gov/programs/wr/caselaw/grimes.htm>.

The amount of the mitigation payments will be set by the state after taking public input on the rule proposal.

Rather than paying for mitigation a business can choose to submit a mitigation proposal. Developing the mitigation proposals has in the past often required professional services in addition to the cost of water and/or capital and labor expenses. Businesses will not choose the mitigation proposal option if it costs more than the annual cost of mitigation payments established in the rule proposal.

The remaining cost and value considerations are similar to those listed in the section for businesses with interruptible rights.

4.e Businesses involved with fisheries

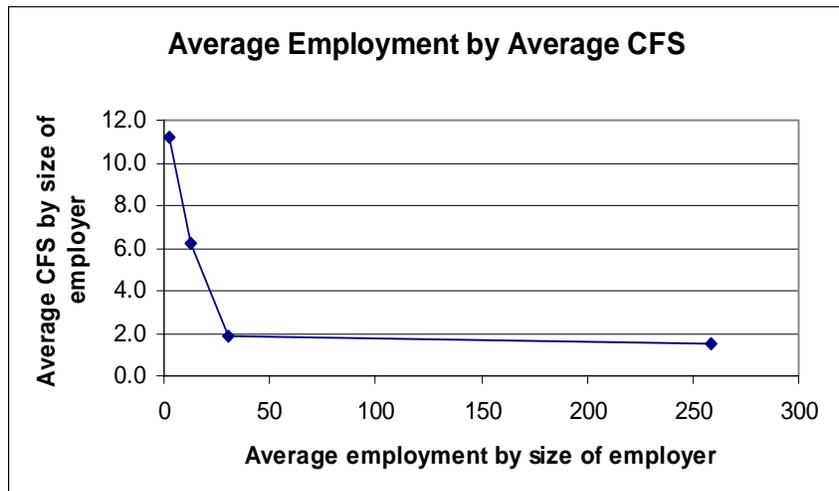
In addition, the rule proposal may benefit the fisheries sector. If fish populations are compromised in the months of July and August in low flow years,⁸ then the additional instream flow may tend to help those populations on which the fisheries sector depends. In moderate flow years there may also be a benefit to these businesses from the 1/3 of the water allocated to instream flow. While it is not possible to quantify these benefits, the resulting potential reduction in risk to salmon populations in the mainstem of the Columbia River is nonetheless a benefit of the proposed rule.

VII. Businesses which may experience costs

Businesses may experience a net reduction in costs. However, the potential for the costs of exercising the new rights under the rule must still be evaluated.

VIII. Disproportionate Impact

The cost of exercising the right to receive water under the proposed rule is likely to have a disproportionate impact on small businesses. A disproportionate impact is determined here by dividing the cost for small and large businesses by the average number of employees they each have and comparing these ratios. The ratio is calculated for the largest 10% of employers and the businesses with 50 or fewer employees.



$$\text{Ratio} = \frac{\text{Cost for the average business}}{\text{Average number of employees}}$$

⁸ National Academe of Science Report: <http://www.ecy.wa.gov/programs/wr/cr/crinsr.html>

Each entity has choices, which affect the level of the costs. For example a new applicant can chose (a) not to apply, (b) to provide mitigation, or (c) to make payments to the state for mitigation. Ecology assumes each business will make the best possible choice given its unique situation. Applicants vary widely by sector. Based on Employment Security data, the Cubic Feet per Second per employee is a declining function of employment for businesses applying for water.

Some of the applicants with the largest water right applications have very few employees thus the water loss per employee is very high amongst the small businesses. On the other hand, many of the largest businesses have

Employment Range	Average Employment	Average CFS in application	CFS per Employee
5 or less	2	11.2	5.28
6 to 24	12	6.2	0.50
25 to 50	31	1.8	0.06
51 or more	259	1.6	0.01

small applications, thus the water loss per employee is over 2 orders of magnitude less. On average a business within the largest 10% of businesses would have a cost of \$3 per employee and a business with 50 or fewer employees would have a cost of \$289 per employee. This is based on an assumption that the amount of the mitigation payments are set by the state at \$10 per acre foot.⁹ The actual economic value of the water may be higher or lower based on the range of values that water produces as a result of application.

From this analysis we conclude that, if any net costs are imposed by the rule, then they would fall disproportionately upon smaller businesses.

However, it is reasonable to assume that applicants receiving drought permits, mitigation water, or new water rights under the proposed rule would choose not to apply for a new water right unless there is a reasonable expectation of benefits resulting from this action. While costs might fall disproportionately upon small businesses, businesses are not expected to experience net cost increases as a result of the proposed rule.

IX. What has Ecology done to reduce the cost of the rule for small business?

The reason for the rule proposal is to reduce the cost of obtaining a right to water. If the program is successful, it will produce gains for affected businesses by reducing delays associated with agency decision-making, litigation, and acquisition and approval of mitigation.

Ecology does expect that although the costs may be disproportionate, that the net gain will be appreciable. Since it is unlikely that a disproportionate *net cost* impact on small businesses will occur, Ecology could not reduce these costs without reducing the gain. However, the rule proposal includes a number of features that have been included to increase flexibility and reduce costs for small businesses under the following criteria:

- (a) Reducing, modifying, or eliminating substantive regulatory requirements;
 - Small businesses may propose and implement mitigation plans that work for them.
 - Small business irrigators with existing interruptible rights will have fewer Best Management Practices to comply with and will not be required to use expensive variable speed pumps.

⁹ Average CFS application data for small and large companies was converted into an approximate average annual acre footage of water which was valued at \$10/AF/Yr based on the mitigation fee, which is a maximum cost of the water for the business.

- (b) Simplifying, reducing, or eliminating record keeping and reporting requirements;
 - The metering requirements in this rule follow existing rule WAC 173-173, which allows people to use photographs and electrical bills to document their water usage.
- (c) Reducing the frequency of inspections;
 - It is not feasible to meet this criterion. In order to assure that existing water right holders are not harmed by this program, and to ensure proper administration of the proposed program, additional attention to compliance activities will be necessary.
- (d) Delaying compliance timetables;
 - In the proposed rule, applicants are given additional time to make decisions and to respond to the new options based on the language of the rule.
- (e) Reducing or modifying fine schedules for noncompliance; or
 - It is not feasible to meet this criterion. In order to assure that existing water right holders are not harmed by this program, and in order to ensure equity among water right holders, similar compliance and enforcement efforts will be necessary for existing and new water users.
- (f) Any other mitigation techniques.
 - The rule proposal is designed to reduce the cost of obtaining water for businesses with existing interruptible rights, 2003 permits, or existing applications for a water right.

X. Ecology will involve small businesses in the development of the rule

Interested parties, including small businesses will be able to participate in the rule development process in several ways. An email listserv has been created for the Columbia River Initiative. This listserv is used to send out rule development updates to interested parties. In addition, a website offers updates about rule activities. The website also contains contact information so that small business owners can contact Ecology staff with specific questions or concerns.

When proposing the rule language, notice will go out to all interested parties, on several Ecology email listservs and mailing lists. The Department will send mailings to all current water right applicants for water from the Columbia River mainstem and post 1980 mainstem Columbia River water right holders. Public hearings will be held in several locations (web address for hearing locations) around the state to provide the public with opportunities to submit formal comments. Comments can be submitted electronically through the website as well as by mail.

Once a rule is adopted, notice will be sent out once again to all automated listservs and mailing lists. As required by Chapter 34.05 RCW, notice must be sent out to all affected businesses.

Appendix 1: Metering Costs

Metering Costs Estimate

WRP Program Management Team Meeting Presentation

October 10, 2001

Below is information on the assumptions and results of a preliminary cost estimate to provide metering hardware for users in 13 fish critical basins.

Assumptions:

1. 950 users comprise 80% of the water diversions in 16 fish critical basins (regions developed lists from WRATS, Chad compiled). Data available on 13 basins.
2. 200 of those have the classification "MU" or municipal and should therefore already be metering. No funds for these are included in estimate.
3. Metering costs can be reasonably estimated using pipe meters (no open channel flow costs used).
4. Users greater than 35 cfs estimated at a flat amount of \$5000 as partial funding for capital costs of meter.
5. Users less than 35 cfs will receive full funding for capital costs of meter (ancillary parts; e.g. straightening vanes, some strainers, fasteners, etc. NOT included).
6. Costs of meters as shown below. Low estimate data from Sparling strap-on propeller irrigation meters and Water Specialties low-end propeller meters. High estimate from Sparling tube propeller meters with totalizer and electronic output capability.

Meter dia. (inches)	Flow (gpm)	Flow (cfs)	Low cost \$	Hi cost \$	# Users
1	10		200	200	100
2	50	0.11	500	500	50
4	400	0.89	700	1,650	80
6	900	2.0	700	1,750	150
8	1200	2.7	750	1,900	75
10	1600	3.6	800	2,300	80
12	2200	4.9	850	2,550	65
14	3000	6.7	950	2,950	50
16		7.0	1050	3,300	10
18		8.8	1150	3,650	10
20		10.9	1250	4,250	30
24		15.7	3050	5,900	7
30		24.5	3750	8,200	3
36		35.3	5200	10,600	40

>35

0.8 million **1.6 million** 750

Chart recorders (e.g. 30 day instantaneous recording) = \$1500

Telemetry = \$5000 (4/20 to digital converter, logger, satellite transmission)

Appendix 2 Best Management Practices

BMP element	Specific item that will cost something	Current regulatory status	BMP applies to??	potential info source
All users				
Fish screens	installation and on-going maintenance of fish screens	previously required	all users	
Water measurement - source meters	source meter installation	Starting in 1993, there was a statutory requirement that Ecology require measurement for: all new surface water permits, diversions > 1cfs and waters where salmonid stocks are depressed or critical. Large users are probably all already doing this as part of their operations. Cities and irrigation districts are already doing this. It will however be new for many small and medium users.	""	McCrometer for propeller meters - eastern WA rep Prinson Sales Inc. 503-672-9977 Jim Pringle// Panasonic Meters for ultrasonic meters - eastern WA rep at (425) 614-1968
	time for reading meter(s) and compiling data	This will be new for many small and medium users. Again, larger users are already doing this.	""	LC BPJ = 6 hours annually of technician's time per water right for small and medium sized users
	time for annual reporting	new requirement to report electronically and provide more data than WAC 173-173 requires	""	LC BPJ = 2 hours annually of technician's time per water right
	meter calibration - estimated at once every 3 years	new requirement	""	same source of info as for meter installation
BMP element				
Specific item that will cost something				
Current regulatory status				
BMP applies to??				
potential info source				
Small irrigation				
Pumping and conveyance efficiencies	pressurized systems	new legal requirement, but ALL small ag interruptibles are already doing this	all small ag irrigation	
	<5% losses	new legal requirement, but most are probably already meeting this	""	O&M costs = ????
Irrigation scheduling	purchase data on evapotranspiration needs	new legal requirement	""	AgriMet data for some areas free from USBR or PAWS data purchase = \$200 annually per user. Estimate \$200 per water right annually
	look up info monthly and change equipment settings	new legal requirement	""	LC BPJ = 1 hour of technician's time each month for 6 months
On-site application efficiency	This is simply a statement of capability of equipment.			
O&M plan	prepare brief plan on operation and maintenance	new requirement	""	LC BPJ = 8 hours of technician's time, this is a one time requirement
Demonstrating compliance with the BMPs	Collecting any necessary data and filling out checklist	new legal requirement	""	LC BPJ = 16 hours of technician's time, this is a one time requirement.

BMP element	Specific item that will cost something	Current regulatory status	BMP applies to??	potential info source
Medium irrigation				
Pumping and conveyance efficiencies	pressurized systems	new legal requirement, but ALL medium interruptibles are already doing this	all medium ag irrigation	
Irrigation scheduling	purchase data on evapotranspiration needs	new legal requirement	""	AgriMet data for some areas free from USBR or PAWS data purchase = \$200 annually per user. Estimate \$200 per entity in each WRIA annually LC BPJ = 1 hour of technician's time each week for 6 months
	look up info weekly and change equipment settings	new legal requirement	""	
On-site application efficiency	This is simply a statement of capability of equipment.			
O&M plan	prepare brief plan on operation and maintenance	new requirement	""	LC BPJ = 8 hours of technician's time, this is a one time requirement
Demonstrating compliance with the BMPs	Collecting any necessary data and filling out checklist	new legal requirement	""	LC BPJ = 16 hours of technician's time, this is a one time requirement.
Large ag irrigation				
Pumping and conveyance efficiencies	pressurized systems	new legal requirement, but ALL large interruptibles are already doing this	all large ag irrigation	
	<5% losses	new legal requirement, but most are probably already meeting this	""	O&M costs = ????
Irrigation scheduling	capital expense for soil moisture probes	new legal requirement	""	
	purchase data on evapotranspiration needs	new legal requirement	""	AgriMet data for some areas free from USBR or PAWS data purchase = \$200 annually per user. Estimate \$200 per entity in each WRIA annually LC BPJ = 2 hours of technician's time each week for 6 months
	look up info daily and change equipment settings	new legal requirement	""	
On-site application efficiency	This is simply a statement of capability of equipment.			
O&M plan	prepare brief plan on operation and maintenance	new requirement	""	LC BPJ = 16 hours of technician's time, this is a one time requirement
Demonstrating compliance with the BMPs	Collecting any necessary data and filling out checklist	new legal requirement	""	LC BPJ = 16 hours of technician's time, this is a one time requirement.

BMP element	Specific item that will cost something	Current regulatory status	BMP applies to??	potential info source
Residential, park and other landscape irrigation			City of Pasco, City of Richland, Badger Mountain Irrigation District, Franklin Irrigation District - at this point only Richland and Pasco are planning on participating	
Pumping, transmission and distribution system efficiencies	operational spill measurement	new legal requirement	Franklin ID only	LC BPJ = \$10,000
	excelerating completion of construction of 4 miles of piped canal from 2020 to 2015	new legal requirement	Franklin ID only	\$4 million in 2003 dollars - verbal statement by ID manager on their cost of completing the first segment in winter 2003. First mile of pipe was 54" American Leak Detection: 509-536-5166 Estimate \$1000 per day
	annual leak detection survey	new legal requirement	Pasco and Richland	
Water use inventory	zone meter installation	new legal requirement	""	
	time for reading meter(s) and compiling data	new legal requirement	""	LC BPJ = 80 hours of technician's time. One time requirement LC BPJ = 8 hours of technician's time annually LC BPJ = 8 hours of technician's time annually
	meter calibration - estimated at once every 3 years	new legal requirement	""	
	estimate area under irrigation for each zone meter	new legal requirement	""	
	annual update of estimated area	new legal requirement	""	
	annual comparison of water use to irrigation requirements	new legal requirement	""	
Irrigation scheduling	capital expense for soil moisture probes on open spaces greater than 5 acres	new legal requirement	""	Contact Rainbird or similar companies for cost estimate on soil probes and controllers
	purchase data on evapotranspiration needs	data already made available by a third party	""	
	look up info weekly and change equipment settings	new legal requirement	""	LC BPJ = 1 hour of technician's time each week for 6 months for each water right holder
Public information	Annual mail-out of information on efficient water use	annual billing already done, some effort will be required for utility to write up water efficiency language for billing	""	LC BPJ = 8 hours to write up appropriate language annually
Ordinance or policy on excess water use	Develop ordinance or policy	new legal requirement	""	LC BPJ = 80 hours. One time requirement
Demonstrating compliance with the BMPs	Collect and retain zone metering data and calculations	new legal requirement	""	LC BPJ = 2 hours of support staff time annually

Appendix 3 Purpose of Interruptible Water Rights

CONTROL_ID	PURPOSE	CONTROL_ID	PURPOSE	CONTROL_ID	PURPOSE	CONTROL_ID	PURPOSE
G3-28599P	irrigation	G4-30397	IR DG	S3-28907P	seasonal irrigation	S4-29673	IR
G3-28837P	omm dom./irrigatio	G4-30399	DM	S3-28912C	non-ag irrigation	S4-29754	IR
G3-28860P	Irrigation/domestic	G4-30417	IR FP	S3-28932P	Irrigation	S4-29799	IR
G3-28995P	Irrig/frost prot	G4-30431	IR	S3-29033P	Seasonal Irrigation	S4-29800	IR DS
G4-26840	IR	G4-30434	IR DM	S4-26227	IR	S4-29941	IR
G4-26841	IR FP	G4-30470	IR DM	S4-26440	IR	S4-29942	IR FP
G4-26878	IR	G4-30664	CI	S4-26461GWR	IR	S4-29971	IR
G4-26879	IR	G4-30674	IR	S426513CWR	IR	S4-29990	IR
G4-27326GWRIS	IR	G4-30811	DG CO	S4-26539	IR	S4-30053(B)	IR
G4-27592	IR	G4-30953	IR FP	S4-27152(A)	IR	S4-30053(E)	ST IR FP
G4-27774	IR	G4-31006	IR HP	S4-27152(B)	IR	S4-30053(F)	ST IR FP
G4-27775	IR	G4-31009	SR IR DM	S4-27234	IR	S4-30053(G)	ST IR FP
G4-27776	IR	G4-31016	IR	S4-27335	IR	S4-30053(H)	ST IR FP
G4-27777	IR	G4-31042	IR FP	S4-27339(A)	ST IR	S4-30053(I)	IR
G4-28828	IR FP DM	G4-31044	IR FP	S4-27339AAC	ST IR	S4-30053(K)	IR FP
G4-28839	IR	G4-31063	IR FP DS	S4-27339BAC	IR	S4-30053(L)	IR
G4-28901	IR	G4-31064	IR FP DM	S4-27890(A)	IR	S4-30053(M)	IR
G4-28936	IR	S3-26230P	irrigation 1-1 to 12-3	S4-27890(B)	IR	S4-30053(N)	IR FP
G4-29036	DM	S3-26448C	Irrigation	S4-28168	IR	S4-30053(P)	IR
G4-29044	MU IR	S3-26456C	Irrigation	S4-28169	IR	S4-30070	IR
G4-29123	IR FP	S3-27554C	Domestic/Irrigation	S4-28293	IR	S4-30151	IR FP
G4-29135	IR	S3-27711C	seasonal irrigation	S428415CWR	IR	S4-30179	IR
G4-29200	IR DM	S3-27891P	irrigation	S4-28500(B)	IR	S4-30199	IR
G4-29338GWRIS	IR FP	S3-27893C	Irrigation/Fire prote	S4-28566	IR	S4-30205	IR FP
G4-29348	IR	S3-27901C	Irrigation	S4-28609GWR	IR	S4-30217	IR
G4-29446	ST IR DS	S3-28082C	Irrigation	S4-28683(A)	IR	S4-30289	IR
G4-29553	IR	S3-28130C	irrigation/non-ag law	S4-28813CWR	IR	S4-30315	IR
G4-29562	IR FP	S3-28191C	Irrigation	S4-28881(A)	IR FR DG	S4-30375	ST IR
G4-29682	IR	S3-28299C	irrigation/ stockwate	S4-28881(B)	IR	S4-30389	IR FP
G4-29798	IR FP DS	S3-28530P	Seas. Irr - domestic	S4-28998(A)	IR	S4-30391	IR FP
G4-29836	IR	S3-28594C	Irrigation	S4-28998(B)	IR	S4-30435	IR ST FP DM
G4-29838	HP FP	S3-28610C	Frst prot. 3 mos	S4-29054	IR	S4-30486	IR DM
G4-29877	IR FP	S3-28615P	Seasonal irrigation	S4-29130	IR	S4-30493	ST IR DS
G4-30032	IR	S3-28653C	Ind sup/dust cntrl	S4-29140	IR	S4-30494	ST IR DM
G4-30088	IR	S3-28654C	Supplmntl less amt	S4-29239	IR	S4-30553	IR
G4-30153	IR DM	S3-28687C	Seasonal irrigation	S4-29246	IR	S4-30589	ST IR
G4-30187	IR	S3-28723C	seasonal irrigation	S4-29269	IR	S4-30634	IR
G4-30208	IR	S3-28738P	Irrigation	S4-29276	IR CI	S4-30662	IR
G4-30254	IR FP	S3-28788P	Irrigation	S4-29412	IR	S4-30668	IR CO
G4-30301	IR	S3-28789P	Irrigation	S4-29423CWR	IR	S4-30722	IR
G4-30351	IR DM	S3-28790P	Irrigation	S4-29528	IR	S4-30728	IR
G4-30364	IR DM	S3-28791P	Irrigation	S4-29535	IR FP	S4-30834	IR
G4-30390	IR	S3-28794P	Seas. Irr -domestic	S4-29559	IR	S4-30952	IR FP
		S3-28876P	Irrigation	S4-29563	IR	S4-30997	IR
						S4-31093	IR

Appendix 4
Cost of Irrigation Conservation by Type and Lift

Conservation Costs by Type and Lift			
Conservation Type	System/lift	Installation \$/acre	Annualized + Variable \$/af
Conventional Furrow		\$ 195	\$ 17
	150		\$ 60
	250		\$ 72
	350		\$ 82
	450		\$ 87
	550		\$ 93
Surge Flow		\$ 218	\$ 19
	150		\$ 60
	250		\$ 72
	350		\$ 82
	450		\$ 87
	550		\$ 93
Mid-elevation Spray		\$ 402	\$ 31
Lifespan	150		\$ 80
25	250		\$ 91
	350		\$ 101
	450		\$ 106
	550		\$ 98
Low-elevation Spray		\$ 432	\$ 34
Lifespan	150		\$ 77
25	250		\$ 89
	350		\$ 99
	450		\$ 103
	550		\$ 110
Low Energy Precision Application		\$ 442	\$ 39
Lifespan	150		\$ 82
20	250		\$ 94
	350		\$ 104
	450		\$ 108
	550		\$ 114
Subsurface Drip System		\$ 979	\$ 133
Lifespan	150		\$ 178
10	250		\$ 190
	350		\$ 200
	450		\$ 204
	550		\$ 210

Appendix 5
SIC Codes that may be Affected by the Proposed Rule

The listed SIC codes will be affected. This list may be incomplete because many applicants do not have employees and are therefore not listed. The SIC Code for one sector is withheld in order to avoid identification issues.

Agriculture	Manufacturing	Services
0134	2873	7992
0139	3365	7999
0172		8211
0175	Transportation	8412
0191	4213	8641
0211	4491	8711
0212	4911	
0721	4941	Public
0723	4971	9131
		9512
Fishing, Hunting	Wholesale	9531
0811	*	9621
Construction	Finance	
1531	6512	
1611	6513	
1711		