Interactive comment on “Definition of efficient scarcity-based water pricing policies through stochastic programming” by H. Macian-Sorribes et al.

Anonymous Referee #1
Received and published: 5 February 2015

Answers to the Anonymous Referee #1 General Comments

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1. **REVIEW COMMENT**

   I lack a better and more intuitive explanation why the MROC values generated by the SDP need to be post-processed before they can be used as pricing policies. If we assume monthly time steps in the SDP and if the SDP is run to steady state, then MROC will depend on the month of the year, the inflow class (Markov state) and the amount of water in storage. Given stationary climate and static economy, MROC will not change from one year to the next, i.e. users will know prices as dependent on storage and inflow in advance. Line 778/2-3 states “it will be neither operative, nor fair nor secure to implement a pricing scheme in which prices would vary at each time stage”, however if prices should reflect scarcity, they must vary with time, inflow and storage. For instance, in the wholesale power market, prices are highly variable over short time scales. Why is this not feasible for water? This should be motivated and explained in much more detail and requires a major revision and extension of section 2.3.

   AUTHOR’S RESPONSE

   We agree that the pricing policy directly defined by the monthly MROC values obtained in the SDP calculations would be in theory the most efficient one. Although short-term variable pricing might be suitable for hydropower (with operation decisions made in short time intervals, being independent of previous decisions), agriculture would face problems dealing with this pricing policy. Farmers make decisions in annual or inter-annual basis (area to be irrigated, cropping patterns, etc.), being monthly choices dependent on decisions in previous months. They operate as risk-averse investors, as errors in the expectations on crop prices (and cost of other farm inputs) and water deliveries for the year can cause significant economic losses. A pricing policy with a high price variability that would correspond to a certain scarcity conditions would just introduce too much uncertainty in the water price and thus in the sector. Using directly the SDP results will involve 93x12x16 = 17856 MROC (pricing) values. On the other hand, the pricing schemes derived from MROC values were conceived as the basis for a process involving discussion, negotiation and approval of a certain simple pricing policy with certain consensus among the stakeholders. This is why we support the development of an a-priori pricing scheme that establishes the fares to be applied depending on the available storage, so that everybody knows the rule beforehand and can react accordingly. This is why the post-processing of the MROC values driven by SDP was incorporated.

AUTHOR'S CHANGES IN MANUSCRIPT (p 778 / line 1) [additions in underlined italics, eliminations in crossed-out italics]

"*The results given by the SDP algorithm are the optimal allocation policies, benefits and MROC values at each point of the discrete mesh. Those values vary with the month of the year, monthly storages and monthly inflows. A pricing scheme based on those values would be in theory the most efficient. Highly variable prices are normal in hydropower production, in which deregulated electricity markets' prices and demands vary even during the same day and, in consequence, hydropower producers need to make decisions on very short time stages, being independent of previous choices. However, this situation is distinctly different in consumptive demands, especially in irrigated agriculture. The majority of farmers make most of their decisions in annual or inter-annual basis (area to be irrigated, cropping pattern and so on), being monthly choices dependent on decisions in previous months. Farmers act as risk-averse decision-makers, since errors in the expectations of crop prices, input costs and water deliveries can cause significant economic losses. For those reasons, a pricing policy directly based on the monthly MROC values would introduce too much uncertainty in the water price and thus in the agricultural sector.*~~*The time series of MROC values cannot be directly used for the definition of pricing policies: it will be neither operative, nor fair nor secure to implement a pricing scheme in which prices would vary at each time stage. The*~~ *On the other hand, the pricing schemes derived from MROC values were conceived as the basis for a process involving discussion, negotiation and approval of a certain simple pricing policy with certain consensus among the stakeholders. As a result, the* raw MROC values previously obtained have to be post-processed in order to transform them into *simpler a-priori* scarcity-based pricing policies*, so that the rule can be negotiated and known beforehand by everybody, allowing farmers to reach accordingly with a more predictable price.* Several operations must be carried out to transform the time series of MROC into a step pricing policy depending on the system state variables (*t,*St, Qt), in which a step function defines the price to be applied each time period. Those operations can be summarized as: MROC values aggregation/disaggregation, MROC statistical analysis, and step pricing policy construction. *Although the SDP method was used to obtain the MROC time series, the operations explained below can be used regardless of the algorithm employed (another stochastic one such as SDDP, deterministic optimization or simulation) able to provide MROC time series*."

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2. **REVIEW COMMENT**

The post-processing steps are listed in detail on page 779. It would be good to have a clear, consistent and transparent terminology. For instance, the terms "previous MROC", "combined MROC" and "final MROC" are introduced, but it is not really clear to me what precisely they represent. I am also unclear about the sorting in steps in 6b and 6c. From the SDP, we get a complete set of water values for all discretized storage and inflow states, so why do they have to be sorted? It seems that the aim of the procedure is to "downsample" the SDP results so that prices are constant over larger regions of the state space. As pointed out above, I am not sure I understand the rationale for doing this. At the end of page 779, it is stated that the post-processing must be re-done if performance is "inadequate". It would be good to define adequacy. How much additional cost / foregone benefit would one want to accept in order to keep prices stable?

AUTHOR'S RESPONSE

The "previous MROC" referred to the MROC time series obtained with the SDP; this adjective has been eliminated in the manuscript. The "combined MROC "were the results of the aggregation/disaggregation process performed over the SDP-driven MROC time series; it has been re-named as "aggregated MROC". The "final MROC" term was used to refer to the combined MROC; now we refer to it as "aggregated MROC". Those definitions have been clarified in section 2.3.

With regard to the sorting procedure, it is performed to transform the MROC time series into pricing policies for the reasons given in the answer to comment 1. Furthermore, those operations could be used for any stochastic programming algorithm capable of obtaining MROC time series (e.g. SDDP) as well as deterministic optimization or simulation; while use directly the MROC values obtained with the SDP for the discrete storage and inflow data would make the method suitable only for the SDP, narrowing the potential applicability of the method. A comment about that feature has been added to the end of section 2.3.

The definition of "adequacy" of a pricing policy depends on the case study features, stakeholder preferences and behavior, and management goals (economic efficiency and other constraints and priorities). An easy measure of accuracy is, as suggested in the comment, to put a value on how much money do we bear to lose as a result of using a less complex pricing policy. That value would depend on the user's preferences: an agricultural user might accept lower incomes if the pricing policy maintains prices stable. Alternatively, one can consider a pricing policy as adequate if the benefits obtained by it are close to those achieved by an optimal command-control approach.

AUTHOR'S CHANGES IN MANUSCRIPT (p 778 / line 6) additions in underlined italics, eliminations in crossed-out italics

"Several operations must be carried out to transform the time series of MROC into a step pricing policy depending on the system state variables (*t,*St, Qt), in which a step function defines the price to be applied each time period. Those operations can be summarized as: MROC values aggregation/disaggregation, MROC statistical analysis, and step pricing policy construction. *Although the SDP method was used to obtain the MROC time series, the* *operations explained below can be used regardless of the algorithm employed (another stochastic one such as SDDP, deterministic optimization or simulation) able to provide MROC time series.*

The ~~A~~aggregation/disaggregation of the MROC time series previously obtained is required in order to derive pricing functions at a certain spatial and temporal scale. Regarding the spatial dimension of the intended pricing policy, different pricing schedules for raw water in different zones in the system will better capture the MROC spatial variability. However, the complexity of pricing policies will probably imply greater implementation difficulties. With regard~~s~~ to the temporal scale, *as stated earlier*, pricing policies varying at a lower time resolution (seasonal or monthly) are more accurate than annual ones, although they might also face more implementation problems and higher uncertainty in future prices. Defining a general procedure to aggregate/disaggregate MROC ~~values~~ *time series* is difficult, since it depends on the desired pricing policy features and each system unique features. An example of aggregation/disaggregation process for the specific features of the desired pricing policy is shown in the case study section.

Once the ~~combined~~ *aggregated* MROC values are obtained, their cumulative probability distribution can be determined. Several characteristic ~~MROC~~ values can then be chosen using different percentiles of the cumulative probability distribution. Those characteristic values can be used to estimate the MROC- state relationship by: *1)* sorting the time series of state variables obtained with SDP according to their respective *aggregated* MROC values; *2)* selecting the MROC-state pairs in which the MROC value was a characteristic one; and *3)* organizing the results in the form of state-MROC steps. To sum up, the method presented in this paper can be divided in the following steps:

1. Definition of the main pricing policy features
2. Development of a hydro-economic stochastic programming model of the system
3. Determination of MROC (marginal water values or λ-values) time series at the reference nodes (e.g. main reservoirs)
4. Aggregation/disaggregation of ~~previous~~ MROC time series to calculate the ~~combined~~ *aggregated* MROC *values*
5. Development of a statistical analysis over the ~~final~~ *aggregated* MROC ~~time series~~*values* to obtain their cumulative probability distribution
6. Building of k steps by:
    a. Choose k different cumulative probability ~~MROC~~ values (characteristic values)
    b. Sort according to the *aggregated* MROC values the system state values obtained in the stochastic programming run
    c. Obtain, for each characteristic ~~MROC~~ value, the system states associated to it
    d. Summarize all the possible state values associated to each ~~MROC~~ *characteristic* value in the form of steps
7. Definition of several step pricing policies based on the obtained steps

Pricing policies can be simulated to assess their performance and to compare them to ~~SDP-derived policies~~ *the SDP results and to other alternatives such as different operating rules*. In case the pricing policies' performance is found to be inadequate, the process must be restarted: the pricing policies' features are reassessed and the build-up and analysis stages must be redone. *The most straightforward way to determine its adequacy is to quantify the forgone benefits that the users would be willing to accept as counterpart of using a simpler pricing policy. It is impossible to establish a unique threshold value since it totally depends on the system features. An alternative approach, employed in the case study of this paper, is to compare the performance of the pricing policy with the one achieved by the optimal operating rules expressed by the SDP results. In that way, a pricing policy could be considered as adequate as long as it obtains similar economic returns than those for the optimal policy.*"

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3. **REVIEW COMMENT**

P. 782: It seems that the objective in the case study was to obtain a pricing policy that would only depend on the combined storage of both reservoirs. Wouldn't it be a logical thing to then also design the SDP with one combined storage only? It also became clear from Fig 7 that the objective in the case study was to obtain a pricing policy that only depends on storage but not on the month of the year. Intuitively, one would expect that the water value must change in time. Having an empty reservoir at the beginning of the rainy season is much less critical than at the beginning of the dry season... Or are these reservoirs so small that they can anyway not be used for seasonal storage (does **not seem to be the case from the info given in table 1)?**

AUTHOR'S RESPONSE

The storage combination was not done because of the particular features of the system. Aggregating the storage would allow to consider neither the seepage losses at Sichar reservoir nor the fact that the intake for the C220 irrigation district is located upstream the Sichar reservoir. In addition, unifying the reservoirs would make impossible to test pricing policies in which storages were considered separately, in case the simpler ones were found not to be adequate.

According to the features of the case study (only agricultural users with mainly orange orchards, steady annual inflows, existence of a previous operating rule and so on) it appears that a pricing policy as simpler as the ones tested would have the best change to be implemented in real life. Rather than an objective, it seemed to us as the best pricing policy to test at first (it is the simplest possible one). The test was successful (we obtained the same benefits as the SDP-derived operating rules) so we did not try more complex pricing policies. A comment about it has been added to the section 3.3.

Water values do change in time as well as in space, but as explained in the answer to comment 1, there are circumstances in which it is worth to sacrifice the ability of the pricing policy to reflect the water values in order to reduce the price variability and uncertainty, making easier the decision-making process that users must carry out.

The reservoirs in the Mijares river are used for seasonal storage, storing water during winter to use it on summer. If their levels are higher enough, then they can work as inter-annual facilities. This behavior can be observed in figure 5, in which both intra and inter-annual patterns can be found. It is true that having empty reservoirs at the beginning of summer is critical while the same situation at the beginning of autumn is not. However, the probabilities of those events are not the same, since the latter phenomenon is less frequent. This behavior can be seen in Fig. 5, in which a refill cycle of at least 20 Mm^3 is noticed every year. Due to that cycle, even if the pricing policy does not vary across time, it has an internal time distribution: most of the higher MROC values that formed the price for low storage levels were found at the beginning of the refill season, while low MROC values associated to higher storage levels were found at the start of the drawdown season. Due to that, even with the same pricing policy, water prices are able to reflect in some way water scarcity. That is the reason why in this case study a simple pricing policy is able to achieve the same economic performance than a complex optimal policy. Furthermore, that is the reason why the best pricing policies for the whole period are not adequate during droughts: in drought situations the in-year pattern of the water values is modified, meaning that pricing policies with different patterns (non-drought ones) are not capable of reproducing the drought-specific MROC distribution in a very dry year. An explanation of the in-year features of those pricing policies is given in section 4.

AUTHOR'S CHANGES IN MANUSCRIPT

(p 783 / line 18) additions in underlined italics, eliminations in crossed-out italics

"Regarding Table 2 and Fig. 8a, only slight differences can be found between policies. All pricing policies increase the economic results of current management policies by around EUR 0.70 million per year, being ~~*close*~~ *similar* to the ones obtained with the direct use of the SDP policies. *For that reason, we consider those pricing policies to be adequate, being not necessary to test complex ones*. This situation is caused by the natural robustness of the Mijares river water system and by the homogeneity of the cropping pattern (mainly citrus crops, mostly oranges) found in the basin."

(p 784 / line 17) additions in underlined italics, eliminations in crossed-out italics

"This paper presents a method to design an efficient scarcity-based pricing policy based on marginal water values (MROC) derived from stochastic programming. The method is applied to a case study, the Mijares river basin, in Spain. The results show that the benefits from the application of the resulting pricing policies are close to those obtained by the optimal SDP policy for both the entire historical hydrological data series and the drought conditions. By pricing marginal water opportunity costs, water would be reallocated to the highest-valued uses, significantly increasing the total net benefit of water use in the basin (by EUR 0.75 million per year).

The reason why a simple pricing policy is able to achieve similar performance than a complex optimal operating rule in this case study is due to the in-year time pattern possessed by this policy: the majority of the MROC values that determined the water prices for the lower storage levels correspond to start-of-refill ones, while the MROC values associated to high storage levels are start-of-drawdown ones. For that, the prices triggered vary across time in accordance to the refill-drawdown cycle of the system, reproducing in some way the water value annual cycle."

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4. REVIEW COMMENT

Water values or MROC depend on the inputs used in the hydroeconomic model. Some of these inputs (e.g. demand curves, return flow fractions etc.) are highly uncertain. It would be good to include an analysis how the uncertainties in model inputs translate into uncertainties in MROC and thus in the pricing policies, and how such uncertainties would impact on the performance of the pricing policy.

AUTHOR'S RESPONSE

Apart from the demand curves, the inputs concerning the Mijares River basin, such as evaporation and seepage losses, were based on decades of recorded data, experience and calibration, reaching a good fit to the observed values, as reported in some of the references of the manuscript such as Andreu et al (1987), Alvarez-Mendiola (2012) and CHJ (2009). One of the reasons behind our case study decision was precisely the amount of reliable data. With respect to return flows, they do not go back to the river, because either there are not surface returns or there are other small users not included in the model that employ those return flows.

The most important source of uncertainty is the demand curves, since they directly affect the MROC values. Given the strong influence of the demand curves in the results, demand curves should be properly estimated and tested. The problem we found is that, given that demand curves are complex and non-linear, performing a sensitivity analysis is difficult and entirely dependent on the way the curves are modified. Moreover, since there are several different demand curves affecting the performance of the system, we found that a sensitivity analysis capable of capturing this diversity was beyond the scope of this manuscript. Future research activities will address this issue using a hybrid optimization-simulation approach in order to be computationally tractable.

The author's changes in manuscript regarding this comment have been done in conjunction with the 2nd referee general comment 2.

AUTHOR'S CHANGES IN MANUSCRIPT (p 784 / line 17, right after the changes made regarding the previous comment) additions in underlined italics, eliminations in crossed-out italics

"*Taking into account the uncertainties associated to the inputs of the model, the predictions concerning the pricing policy performance are therefore uncertain. The most important source of uncertainty is the demand curves, since they directly affect the MROC values and the reliability of the simulated performance of a pricing policy. Given the strong influence of the demand curves in the results, demand curves should be properly estimated and tested.*"

Answers to the Anonymous Referee #1 Detail Comments

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1. **REVIEW COMMENT**
   772/4: Maybe "scarcity-dependent" is better than "scarcity-based"

   AUTHOR'S RESPONSE
   Although both could be applied in the context of the manuscript with a very similar meaning, we found scarcity-based a much more common term in the economic literature rather than scarcity-dependent.

   AUTHOR'S CHANGES IN MANUSCRIPT additions in underlined italics, eliminations in crossed-out italics
   No changes were made

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2. **REVIEW COMMENT**
   772/15: "on" should be "in"

   AUTHOR'S RESPONSE
   "On" has been replaced by "in"

   AUTHOR'S CHANGES IN MANUSCRIPT (p 772 / line 15) additions in underlined italics, eliminations in crossed-out italics
   "One of the main challenges in integrated water resources management (IWRM) is…"

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3. **REVIEW COMMENT**
   772/17: This may be a bit of a Euro-centric view. In China and parts of Africa (e.g. Ethiopia), new hydraulic infrastructure is built at an unprecedented scale. . .

   AUTHOR'S RESPONSE
   A clarification was added in the manuscript

   AUTHOR'S CHANGES IN MANUSCRIPT (P772 / L16-17) additions in underlined italics, eliminations in crossed-out italics
   "Given that in the majority of the developed world the building of new water supply systems has well-passed its zenith, water management…"

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4. **REVIEW COMMENT**
   774/4: delete "the" before "economic theory"

   AUTHOR'S RESPONSE
   The word "the" was eliminated

   AUTHOR'S CHANGES IN MANUSCRIPT (p 774 / line 4) additions in underlined italics, eliminations in crossed-out italics
   "A pricing policy is efficient, according to ~~the~~ economic theory, if the prices charged…"

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5. **REVIEW COMMENT**
   780/13: “not” should be “no”

   AUTHOR’S RESPONSE
   The word “not” was replaced by “no”

   AUTHOR’S CHANGES IN MANUSCRIPT (p 780 / line 13) additions in underlined italics, eliminations in crossed-out italics
   “explicitly represented in the optimization model, as there is no hydraulic connection…”

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6. **REVIEW COMMENT**
   782/24 ff: Why not also compare to the full set of MROCs as generated by the SDP? I guess you do it and call it “SDP” in fig 8, but it is in effect also a pricing policy. . .

   AUTHOR’S RESPONSE
   The “SDP” alternative corresponds to the policies obtained by the SDP algorithm, once interpolated as in Tejada-Guibert et al (1993). Those policies were analyzed using the same simulation model as the current operating rules and the pricing policies. They do not reflect a pricing policy, but the solution based on the optimal rules from the SDP. Although the comparison suggested by the reviewer would certainly be useful, it is beyond the scope of our paper, which is presenting one new method and make a comparative analysis between its performance and the one offered by operating policies defined using traditional ways. This comparison would be require additional research to be addressed in further studies.

   AUTHOR’S CHANGES IN MANUSCRIPT
   (p 783 / line 16) additions in underlined italics, eliminations in crossed-out italics
   “Figure 8a shows the time series of benefits resulting from SDP*-derived policies (the optimal policies obtained from the SDP once interpolated as suggested by Tejada-Guibet in 1993)*, current management rules and the best pricing policies for the 1940–2009 period.”

   (p 786 / line 12) (right before the acknowledgements section) additions in underlined italics, eliminations in crossed-out italics
   “*Further lines of research that could be addressed would include analyzing the impact of the uncertainties found in the model, as well as well as comparing the pricing policies defined in this paper with ones defined after the methodology developed in Pulido-Velazquez et al (2013) or using other possible approaches.*”

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7. **REVIEW COMMENT**
   783/6: Why not use the same model as used for the SDP runs? Does the MATLAB model include more spatial/economic detail than the SDP scheme?

   AUTHOR’S RESPONSE
   Both models represent the system in the same detail and possess the same features. The change of programming language between the SDP and the simulation models did not

regard to any technical issue, it was just to take advantage of previous works. A comment about that was added to the paper.

AUTHOR'S CHANGES IN MANUSCRIPT (p 783 / line 5) additions in underlined italics, eliminations in crossed-out italics
"Each pricing policy was simulated for the 1940–2009 period with a hydro-economic simulation model, previously built using MatLab (Macian-Sorribes, 2012) whose features are identical to the SDP one."

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8. REVIEW COMMENT
783/last paragraph: One may conclude that the case study is not really well suited to demonstrate the methodology described in the paper, if differences in the performance of the various pricing policies are so small.

AUTHOR'S RESPONSE
We agree that other case studies would have likely shown greater differences due to the features possessed by the Mijares river, outlined in section 2.4. We choose that case study since it is one of the most documented rivers in Spain and, in consequence, we could built a model close to reality without the need of additional studies, for both the physical and the economic features. On the other hand, the fact that several pricing policies achieved an economic performance close to optimal operating rules is an advantage of the case study in the sense that it proves that this methodology is able to obtain pricing policies whose performance is optimal. Furthermore, the existence of several pricing policies with the same global benefits but different benefits for each user proves that the methodology is flexible enough to let the decision-maker distribute the costs and benefits between the different users. Therefore, the case study election was bad in certain aspects, but good in others.

AUTHOR'S CHANGES IN MANUSCRIPT (p 783 / line 28) additions in underlined italics, eliminations in crossed-out italics
"As the income losses are non-linear with respect to the deliveries, that deficit distribution improves the total economic return for the system. *Despite having the same global benefits, the way they are distributed among the users changes for all the pricing policies tested, being necessary to take it into account when deciding which one to be implemented.*"

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9. REVIEW COMMENT
783/24: "relocations" should probably be "reallocations"

AUTHOR'S RESPONSE
"Relocations" has been replaced by "reallocations".

AUTHOR'S CHANGES IN MANUSCRIPT (p 783 / line 24) additions in underlined italics, eliminations in crossed-out italics
"The benefit improvement caused by pricing policies is due to temporal re*al*locations:"

10. REVIEW COMMENT
784/23-25: I do not understand this statement.

AUTHOR’S RESPONSE
In previous works, trial-and-error processes were required to adjust the pricing policies’ performance, since the method adopted was not able to provide optimal economic returns: prices were systematically modified and the model was run again to determine if they were adequate or not. The procedure developed in this paper, on the other hand, did not require any random modification, since all the pricing policies were product of combining the MROC intervals in the way exposed in the paper. However, in accordance to the 2nd referee general comment 1, the avoidance of trial-and-error processes has not been considered as an important difference in comparison with the modifications introduced by this methodology. Consequently, the statement has been eliminated.

The author’s changes in manuscript due to this comment have jointly with the 2nd referee general comment 1.

AUTHOR’S CHANGES IN MANUSCRIPT (p 784 / line 17) additions in underlined italics, eliminations in crossed-out italics
“~~*The differences between this*~~*Unlike the* method ~~*and the one*~~ proposed in Pulido-Velazquez et al. (2013)*, this one uses* ~~*consist basically of: (1) using*~~ a stochastic programming approach instead ~~*a*~~ *of* deterministic programming or ~~*a*~~ simulation ~~one; and (2) obtaining pricing policies via statistical analysis and system state sorting according to the MROC values. The use of stochastic programming methodologies implies that the MROC-state relationship obtained reflects an optimal but realistic situation, instead of a non- optimal situation (simulation) or an unrealistic optimal one (deterministic optimization). In addition, the method proposed in this paper to obtain pricing policies avoids trial-and-error procedures, whose time requirements are hard to estimate~~. *It also employs a different method to derive the pricing policies based on the MROC and state time series.*”

11. REVIEW COMMENT
785/Bullet 3: Does this mean that pricing policies change in time after all (drought/no drought)?

AUTHOR’S RESPONSE
In each pricing policy run the same pricing policy was used for the whole period, they were no pricing policy changes. The fact is that the pricing policies with the best performance for the whole period (1940-2009) were different from the best ones when looking at the drought period (1977-1986). In theory, pricing policies could be defined differently for normal situations and drought periods. But since we are dealing here with a-priori pricing rules, this would require a mechanism that could forecast the droughts. This is why in this case we define a pricing policy that is applied to the whole period.
The reference to the droughts issue has been removed from the text.

AUTHOR'S CHANGES IN MANUSCRIPT (p 785 / bullet3) additions in underlined italics, eliminations in crossed-out italics

"~~*.It can be used to define pricing policies either under general conditions or drought events*~~"

12. REVIEW COMMENT

785/786: Bullet 4 is not clear. An example may help.

AUTHOR'S RESPONSE

Bullet 4 means that the desires of the users/stakeholders about the pricing policy features can affect the aggregation/disaggregation mechanism. An example has been added to the text. Therefore, it is crucial to know those desired features via participatory processes.

AUTHOR'S CHANGES IN MANUSCRIPT additions in underlined italics, eliminations in crossed-out italics

"~~*4*~~*3*. Participatory framework processes ~~*are needed*~~ *might be desirable* to define the features and characteristics that the ~~*desired*~~ pricing policies should have, ~~*as they condition the MROC aggregation/disaggregation mechanism*~~*in order to find as much consensus as possible for its implementation*. ~~*These procedures are key milestones for the pricing policy implementation.*~~"