

***Interactive comment on “Assessing residual
hydropower potential of the La Plata Basin
accounting for future user demands” by
I. Popescu et al.***

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Received and published: 2 July 2012

We would like to thank the reviewer for taking time in reading and suggesting modification to the paper. We found all comments very useful to improve our paper.

Answers to the raised comments are as follows:

Comment 1: General comments:

In general, the paper exposed an interesting, important and nowadays topic. The energy demand is a present issue in many of the development and developing countries around the world such as Brazil, Argentina and Uruguay. In this way, the research topic

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discussed in this paper is relevant to the topics exposed in this journal. The title of the paper mentions the concept "residual hydropower potential". This concept refers to the unexploited hydropower resource at the basin. As a general recommendation, define the concept "residual hydropower" could help the readers to understand the approach of this research. Despite, the research shows that LPB has more hydropower potential to exploit, the energy demands at the basin cannot be supplied just with hydropower sources. Therefore, the LPB basin could experience shortage of energy, affecting population and industrial development in the short term.

Authors' answer: We would like to thank the reviewer for taking time and evaluating the topic of the paper as interesting and as well for finding the paper useful for the HESS readers. We find all the comments of the reviewers very useful and we are following the suggested changes so that the manuscript is improved in readability and clarity.

Please find our answers to all raised issues below. They are addressed one by one as they are raised in the interactive discussion.

Comment 2: *The residual hydropower production has been calculated using historical data (the last 20 years). Base on that analysis, the residual hydropower potential does not consider the climate variability. This issue should be mention on the text in order to proposed further studies about the topic.*

Authors' answer: The authors would like to thank the reviewer for pointing out the omission from the text. The same comment has been raised by the other reviewer as well. We were looking at year 2040, which is a close horizon, and this is why we did consider, in view of the facts presented by Barros et al that the last 40 years of data are representative for the study, and we did not look at the climate variability for the next 40 years. This is an open issue to be further researched. We will add this remark in the revised version of the manuscript, making it clear in the introductory part and we will add the suggestion of further research in the area, in the Conclusion part.

Comment 3: OTHER REMARKS

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3.1. *Page 5636 Line 17: "... is computed considering that first the water supply needs for population, industry and agriculture are served and than hydropower energy is produced." Instead of "than" should be then. I am agree to select municipal water supply withdrawals as a first need, however the water needs for agricultural and industry are usually required on the middle basin and the hydropower intakes are usually located at upper basin. Therefore, it could be consider a percentage of the agricultural and industry water need go back to the system and is use for hydropower production; this point could be taking into account for further studies.*

Authors' answer: Thank you for pointing out the consideration of reusing the water available for agriculture and industry as available for hydropower. We will include this possibility for further research in the conclusion part of the new version of the manuscript. We will also correct "than" with "then"

3.2. *Page 5642 Line 4: In order to clarify, the units system used for the formulas should be mentioned it (Metric International System, SI).*

Authors' answer: Thank you for this very useful remark. We will make this clarification in the revised version of the manuscript.

3.3. *Page 5647 Line 22: "... correlated with the nowadays measured agricultural ..." Instead of "nowadays" should be current or present. Page 5649 Line 21: "... based on the nowadays production ..." Instead of "nowadays" could be current or present.*

Authors' answer: We will make the correction.

3.4. *Page 5649 Line 23: "... is presented in Fig. 9." The paper does not content Figure 9, it should be refer to Figure 8.*

Authors' answer: Thank you. We will make the correction.

3.5. *Page 5650 Line 24: "... of the idrological ..." It shoudl be "hidrological"*

Authors' answer: Thank you. We will make the correction.

3.6. *Page 5651 Line 23: It should be Figure 8.*

Authors' answer: Thank you. We will make the correction.

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3.6. Page 5653 Line 1: "... assessed the nowadays hydropower ... " It would be better current or present.

Authors' answer: Similar to comment 3.3. we will update the manuscript.

6.7. Please also note the supplement to this comment: <http://www.hydrol-earth-syst-sci-discuss.net/9/C2647/2012/hessd-9-C2647-2012-supplement.pdf>

Authors' answer: We have checked the supplement and it contains the same comments as they are posted in the interactive discussion, therefore the answers posted here are for the supplement document as well.

Authors' final remark: All our responses to the questions raised by the reviewer will be included in the revised version of the manuscript.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 5635, 2012.

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