 he specific topic ("CC **from** water") is new for me, in the sense we did not talk about it before.

* Nothing against it, but you should be aware that it is not "directly" included within our current research lines, so we can not divert money from our current running projects to support this research line (grants, resources, etc.)

the definition of the problem/s, the justification of the limitations of current methods to solve it, and the description and justification of the solution/s proposed to solve them

* The definition of the problem is not detailed
* The main challenges in the current state-of-the art are not detailed/discussed
* The way how you expect to overcome these challenges (Specific tasks to be developed) are not detailed.
* The specific "novelties" to be achieved, in front of the current state-of-the-art (e.g.: new procedures, more efficient designs, new knowledge,...) are not discussed/quantified in detail.
* The specific "benefits" expected from the research are not discussed/quantified in detail(e.g.: in terms of additional CC potential, in terms of cheaper procedures, etc.)
* The required research resources to develop this proposal are not quantified (men-month, time, experimental/calculation resources, tasks schedule, milestones, ...)
* Risks are not identified.

**A1.- Topic: You propose to work on the topic** *"Optimizing a carbon capture process from water" (or "to efficiently capture and store carbon dioxide (CO2)dissolved in water source"*). This detailed scope is **new for me** (until now, we did not discuss anything in this specific line). In this sense

* The topic is now very (very) specialized. **To be very specialized is good**, but this must be properly justified. In this sense
* The topic you proposed in your previous mail (CCS in general) should usually consider capture from generation sources (e.g. power plants) and/or capture from current repositories (atmosphere!)
  + Apparently, you here consider "capture from other current repositories", so the importance of using this "alternate" current repository should be clearly demonstrated
* This so specialized topic is not directly aligned with any of our currently running projects. So we can not ensure funding, specially if this requires
  + Manpower funding (e.g.: grants)
  + Experimental funding
* I can not imagine any potential "real application" scenario around us, which can offer us some funding.

A2.- Certainly, the topic may be very interesting, but in implies an **in-depth knowledge of water chemistry**, which I am not sure it is available in our research team:

* we are not specialist on watre chemistry (other research groups at UPC will probably know better this area).

A3.- Since I am not specialist in this topic, I can not assess the potential innovation that this proposal may include. But

* My initial guess indicates that it is not the most efficient way to fight against climate change (It seems that the proposal is NOT to "capture" of CO2 emissions from WWTPs  - the proposal is NOT to capture de "C" contaminating water (BOD/COD))
  + In your proposal, I can not find any **target** on the potential benefits that the eventual optimization of this CarbonCapture and Storage may represent in front of the current situation.
* Actually, it is not easy to find studies on this specific topic.
  + **This might be very good**, in the sense that your proposal might open a new research line
  + But, in any case, this poses a bigger emphasis on the need to evaluate the potential benefits and the potential risks associated to the study you propose:
    - May be it is not relevant (no benefits are to be obtained)
    - May be it is not worth (compared to other CCS alternatives)

**B.- Regarding the document: Introduction**

B1.- I can not see how the introduction "introduces" the topic ("CC **from** water"). You mention that different techniques can be applied, but the only information provided is their name.

B2: This section includes a "literature review" on *Optimizing a carbon capture process from water*, were no details are given about the specific challenges and opportunities associated to this specific CCS option.

For example: DOI: 10.1039/d2ee03804h : The existing methods for removing carbon dioxide from seawater apply a voltage across a stack of membranes to acidify a feed stream by water splitting. This converts bicarbonates in the water to molecules of CO2, which can then be removed under vacuum. Hatton, who is the Ralph Landau Professor of Chemical Engineering, notes that the membranes are expensive, and chemicals are required to drive the overall electrode reactions at either end of the stack, adding further to the expense and complexity of the processes.

B3: Apparently, none of your references specifically analyses CC from water (like DOI: 10.1039/d2ee03804h).

B3: Actually, it seems that your review starts "*Once CO2 is captured from water*, " (!!??)

**C.- Regarding the document: State of the art**

C1.- I can not find any single reference **to the specific topic ("CC from water")** in this section.

C2.- Actually, in this section I can not find any single reference **to any current work at all**.

C3.- Specific achievements and current challenges in the line of your study are not highlighted

**D.- Regarding the document: Objective(s)**

D1.- Confusion objectives ("*Instead, the objectives revolve around broader aspects of optimizing carbon capture technology, risk assessment, cost modeling, development, and policy recommendation*").

D2.- We do **NOT** have the resources (knowledge, experimental permises, budget...) required to address the first clear objective (*Development of Water-Based Carbon Capture Methods: Researching and developing* ***innovative*** *methods for capturing carbon (CO2) from water source )*

D3.- We do **NOT** have the resources (knowledge, experimental permises, budget...) required to address the third clear objective: Testing and Validation: Conducting experimental testing and validation of water-based CC methods

**E.- Regarding the document: Methodological Framework:** Similar comments apply to this section.

**F.- Regarding the document: Work Done, Learning Activities, Collaborations, and Strategic Planning:**

**F1: Work done??** (It seems like you mention some work done in this line?  SCIP?? "*The key findings of the research were summarized*"? "*The efficient solution of the mixed-integer nonlinear programming problem using the SCIP  
solver was highlighted*"? *"Specific results, such as the significant reduction in total cost (57.80%) compared to the basic scenario, were provided"*?)

**F2: Planning??** (I can not find any Strategic Planning in your document)

**F3: Collaborations?** (nice purposes, but details must be provided: "*Partnerships were established*"?)