



Striking the Balance between Renewable Energy Generation and Water Status Protection: Hydropower in the Context of the European Renewable Energy Directive and Water Framework Directive

Journal:	<i>Environmental Policy and Governance</i>
Manuscript ID:	EET-13-0143.R1
Wiley - Manuscript type:	Research Article
Keywords:	hydropower, Water Framework Directive, renewable energy, environmental policy integration, energy policy, sustainability

SCHOLARONE™
Manuscripts

Review

1
2
3
4 **STRIKING THE BALANCE BETWEEN RENEWABLE ENERGY**
5
6 **GENERATION AND WATER STATUS PROTECTION:**
7
8 **HYDROPOWER IN THE CONTEXT OF THE EUROPEAN RENEWABLE ENERGY DIRECTIVE**
9 **AND WATER FRAMEWORK DIRECTIVE**
10
11
12
13
14
15
16
17
18

19 **Keywords:** hydropower; Water Framework Directive; renewable energy; environmental policy
20 integration; energy policy; sustainability.
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Abstract

This article addresses the theoretical and practical challenge faced by the European policy community and member states of trying to simultaneously pursue renewable energy and environmental goals, as incorporated in the European Union Renewable Energy Directive and the Water Framework Directive. Through the case of hydropower which is today at a crossroad between being a renewable electricity source - answering to climate change and energy security concerns - as well as a local environmental challenge in the light of degradation of rivers ecosystem and local biodiversity, the article explores the way renewable energy and water protection objectives are integrated inside the Common Implementation Strategy at the EU level. Based on document analysis and interviews, the mapping of the different frames shows that old conflicts and controversies related to the hydropower technology have been reopened and reframed in order to accommodate both the energy security issue and the EU sustainability and climate change discourse. Conclusions reveal that despite the creation of multi-stakeholder platform for negotiation and collaboration, the Common Implementation Strategy fails in several occasions to explain how to achieve the right balance and leaves unclear what specifically has to be integrated and to what degree. Hence, in front of the plurality and diversity of values, interests and concerns in relation to hydropower and the Water Framework Directive goals, a prioritization between the water, climate and energy policy goals might be needed, with the possibility of having real winners and losers of the integration process.

Abbreviations

CIS	Common Implementation Strategy
DG	Directorate General
EEB	European Environmental Bureau
EPI	Environmental policy integration
EU	European Union
HMWB	Heavily modifies water bodies
NGO	Non Governmental Organization
RES	Renewable energy source
WFD	Water Framework Directive
WWF	World Wide Fund For Nature

INTRODUCTION

Policy issues are often characterized by contested objectives, conflicting values and trade-offs. For this reason, concepts of policy integration, balancing and win-win strategies are central in policy making and implementation. Their relevance has become even more striking in front of the growing and incoherent system of European directives which risks hindering the implementation process and the achievement of the different goals (Eurelectric, 2005; Jordan and Lenschow, 2008; Jackson, 2011). A large share of recent literature has thus focused on how to manage conflicts and foster synergies between legitimate yet conflicting social, economic and environmental goals, towards the achievement of a more sustainable development (Beunen *et al.*, 2009; Lafferty, 2004; Nilsson *et al.* 2012; Soderberg and Eckerberg, 2013; Rietig, 2013).

The purpose of this article is to contribute to the broader debate by addressing the theoretical and practical challenge faced by the European policy community and member states of trying to simultaneously pursue renewable energy and environmental goals, as incorporated in the European Renewable Energy Directive (RES) and the Water Framework Directive (WFD). We present here the case of hydropower which is today at a crossroad between being a renewable electricity source - answering to climate change and energy security concerns - as well as a local environmental challenge in the light of degradation of rivers ecosystem and local biodiversity (Rosenberg *et al.*, 1995; McCully, 1996; Bunn and Arthington, 2002).

Hydropower is a mature and well-established renewable technology which supplies over a tenth of the European Union (EU) electricity generation and about 60% of its renewable electricity generation in 2012. It has played an important role in the European economic development in the last 50 years and it is expected to be significantly important in the EU energy scenarios of the coming decades, especially in relation to the increasing penetration of intermittent renewable energy and need of storage capacity (Eurelectric, 2011; interview DG energy). Hydropower represents indeed one of the storage solutions (Gimeno-Gutiérrez and Lacal-Arántegui, 2013).

In the light of the RES and the EU climate and energy strategy, hydropower is defined and promoted as a renewable energy source (RES, art.2) which contributes to the abatement of greenhouse gas emissions, increased security of supply and achievement of mandatory renewable EU and national targets by 2020. On the other hand, hydropower is one of those climate change mitigation measures which do not necessarily contribute to the sustainability goal because of the hydro-morphological pressures it causes to water bodies (Rietig, 2013; Fletcher, 2010). Although not directly regulated by the WFD, hydropower is affected by this framework which responds to trends of deterioration of EU water status and aims to protect and ensure the good ecological and good chemical status of all water bodies by 2015 (WFD, art. 2.9). In the light of the WFD hydropower has been identified as the third most common water use for designating Heavily Modified Water Bodies (HMWB) (WFD, art. 4.3), which are bodies of water that have been subject to *physical alteration* as well as *substantial changes in character* as a result of human activity which cannot be removed because of the high economic and social cost (Ecologic, 2009; EC, 2012b). For this category of water bodies, the quality target to pursue by 2015 is a less stringent objective that substantiate in the good ecological potential, with possibility of extending the deadline for reaching the targets until 2027 (WFD, art. 4a).

1
2
3 Looking at the goals of the two directives per se, there seems to be no direct conflict as they both
4 answer to sustainability imperatives, by stimulating positive environmental development and more
5 efficient energy and water policies (Nilsson *et al.*, 2012). Nevertheless, in the case of electricity
6 generation through hydropower, the conflict materializes when pursuing WFD goals hinders those of
7 the RES directive and vice-versa. This is the case of requirements for modification of existing
8 hydropower facilities that, in order to reach the good ecological status of water bodies impose
9 economic costs and potential losses of technical capacity and economic profitability for the
10 hydropower sector. The conflict is likely to become stronger as climate change and energy policies
11 adopted in its name might require new hydropower schemes that might be hindered in order to
12 comply with the “no deterioration” requirement of the WFD.
13
14
15

16
17 While the interaction of the WFD with other policy goals has been already explored as in the case of
18 the Birds and Habitats Directives (Beunen *et al.*, 2009), forestry (Keskitalo and Pettersson, 2012), or
19 in relation to national and regional implementation challenges (Lieberink *et al.*, 2011) as well as
20 public participation issues (Newig *et al.*, 2005; van der Heijden and ten Heuvelhof, 2012), we find
21 that very little attention has been paid to the interaction of this framework with the renewable energy
22 policy and the RES directive, especially in relation to hydropower (Arcadis, 2011; Nilsson *et al.*,
23 2012). Little is said also about the origin of the complexity, uncertainty and conflict which spreads
24 from the EU level affecting national and regional government where the integration of different
25 concerns has its last instance. We believe the hydropower case, by providing a good illustration to
26 the energy-environment nexus, addresses this research gap and contributes to the theoretical and
27 practical understanding of policy integration challenges and conflicts at the EU level.
28
29
30

31
32 We look specifically at the activity taking place inside the Common Implementation Strategy for the
33 WFD (CIS), a multi-stakeholder platform which answers to needs of the EU Commission, EU
34 member states, hydropower industry and environmental NGOs to manage the complexity of the
35 WFD, as well as to achieve a major integration and balance of the water and energy policy goals.
36 The objectives of the paper are to: (a) analyse the conflicting interests and goals between
37 hydropower production and the European WFD; (b) analyse how the process of policy integration
38 between energy and environmental goals is being pursued at the CIS level; and (c) discuss to which
39 extent this process is successful and useful.
40
41

42
43 This article first elaborates on the theoretical importance of environmental policy integration and
44 frame analysis, underlying frames relevance and reframing for the elaboration of collaborative
45 solutions, conflict management and the integration of different policy goals. Following the
46 methodological considerations, section 4 maps out the arguments for promoting and opposing
47 hydropower in the light of the different frames of the stakeholders involved in the CIS. We believe
48 their mapping represents an important starting point for the understanding of the conflicts and
49 discussion of the current situation of the European hydropower sector, as well as, the need to balance
50 energy and water concerns. Section 5 discusses the CIS efforts for conflict management and
51 reframing of the policy goals, highlighting the difficult and unclear definition of policy integration
52 inside this multi-stakeholder platform. Finally, the concluding session reports on the main findings
53 and discussion points, highlighting the difficulty to reduce complexity and ambiguity in the absence
54 of a clear relation between the water, climate and energy policy goals.
55
56
57
58
59
60

FRAMEWORK FOR ANALYSIS

The issue of reconciling conflicting policy concerns and ends can be connected to two relatively extensive literatures which will be briefly presented hereby: the literature on environmental policy integration (Collier, 1994; Lenschow, 2002a, 2002b; Lafferty, 2004; Lafferty and Knudsen, 2007; Jordan and Lenschow, 2010) and the literature on framing and conflict management strategies (Putnam and Holmer, 1992; Schön and Rein, 1994; Gray, 2004; Shmueli, 2008; Dewulf *et al.*, 2005). We have chosen to draw upon these two as they provide excellent references for developing a suitable analytical design enabling answers to the research objectives.

ENVIRONMENTAL POLICY INTEGRATION

The literature on EPI has developed as a response to the need clearly expressed in the Brundtland Report (WCED, 1987) to connect and reconcile seemingly incompatible goals such as economic competitiveness, social development and environmental protection. The premises is that increased policy integration should ensure that environmental concerns are fully considered in the development of sectoral policies, leading to better conditions for improving the environmental outcomes of a sector and recognizing the de-coupling of economic drivers from environmental degradation as a crucial concept for the achievement of ‘sustainable development’ (Art. 6 of the European Treaty; Lafferty and Ruud, 2008).

EPI has been promoted both from a normative and a rational basis. From the normative basis EPI is seen as a “first order operational principle” Lenschow (2002b: 6) and an “overarching societal objective” (Lafferty, 2004:202) where the “principled priority” of environmental goals should be ensured (Lafferty and Hovden, 2003; Liberatore, 1997). From a rational point of view, EPI is seen as contributing to greater efficiency and coherence of policymaking (Jordan, 2002; Peters, 1998; Underdal, 1980). In this case, EPI would seem to rely on the balancing of environmental and non-environmental objectives in order to resolve the conflicts between policy objectives and satisfy all affected interests (Collier, 1994). With this regards, Lafferty (2004:200) highlights the risk associated to the emphasis on “mutual benefits” in the definition of Collier (1994) that is to draw the attention away from the fact that interests may be affected in a negative manner by the application of environmental policy, underestimating the conflicts inherent in the decoupling objective. With direct relevance to the debate on trade-offs and the challenge of making EPI credible and effective, Lenschow (2002a) argues that rather than portraying only win-win scenarios, it is crucial to consider the real numerous conflicts of interests with respect to many environmental issues, as well as prioritize the environment on sectoral issues. It is obvious from the different definitions that the environment is not always necessarily prioritised, and that the degree of integration is the result of political negotiation processes where priorities are determined by varying economic and political conditions, as well as the pressures of interest groups.

For the purpose of this paper we look at the policy outcome of the process occurring inside the CIS. In the present context, EPI provides a reference for analyzing how trade-offs between environmental and energy policy concerns in the case of hydropower are managed inside the CIS.

As EPI is “about reconceiving the key policy objectives of sectors in a way that makes the

environment an intrinsic rationale of sector policy” (Nilsson and Eckerberg, 2007, p.45), the process of EPI can also be considered a reframing process of perspectives, problem perception and fundamental ideas in sector policies and strategies. In this process the different economic, environmental and social interests are brought together and the issues have the chance to be reframed towards the achievement of sustainable development (Nilsson & Eckerberg, 2007; Nilsson, 2005).

FRAMES, FRAMING AND REFRAMING

Frame analysis has been used in previous studies of EPI analyzing if and when actors tend to reframe their policies in order to incorporate environmental concerns (Soderberg, 2011; Nilsson, 2005).

As defined by Rein and Schön (1993, page 146) policy frames are “ways of selecting, organizing, interpreting, and making sense of a complex reality to provide guideposts for knowing, analyzing, persuading and acting”. Hence, policy frames are lenses from which a complex situation can be made sense of, and they contain objectives, assumptions about problems, and prescription about the suitable way to deal with the issue (Gray, 2004; Dewulf *et al.*, 2005).

In a complex and conflicting situation as the management of water resources in the presence of hydropower, managing the interdependent uses of water means to deal with the stakeholders’ different values, interests in the natural resource, specific interpretations of the problem at stake and preferred outcomes. The source of the conflict lies therefore in the dissimilar interests, perception of the issues at stake and preferred outcomes of stakeholders (Shmueli and Ben-Gal, 2003; Shmueli, 2008). This said, the intensity of the conflict and its resolution rely on the degree of difference and strength of stakeholders’ values, and the way the dispute is labeled (i.e. win-lose or win-win situation) (Gray, 2004). In this context, the activity of framing is seen as a deliberate process of constructing a frame in order to understand a complex situation or for a counterpart in negotiations in order to persuade to accept a certain point on contested issues (Zito,

In order to manage and resolve frame conflicts, several studies have underlined the role of communication in conflict management (Schön and Rein, 1994; Putnam and Holmen, 2002; Dewulf *et al.*, 2005; Shmueli, 2008). Bringing together and connecting the multiplicity of contending parties’ should enable confrontation, exploration and reflection on the different frames towards reframing and accommodation of controversies that had at first seemed hopelessly intractable (Schön and Rein, 1994, page 57). Hence, frame connection and reflection should enable a process of learning and negotiation, which increases the possibility for more collaborative and integrative solutions where goals fit into a coherent whole (win-win solutions) (Winship, 2006; Nilsson, 2005; Putnam and Holmen, 2002). Thus, reframing occurs during negotiations and consists of a deliberate attempt to alter others frame, usually to facilitate communication and shape the course of a joint decision-making. Nevertheless, as Schön and Rein (1994) note, reflections on frames does not always lead to reframing, and reframing does not always necessary lead to resolution.

In this study, by reframing we consider the adjustment of policy goals, problem definition and strategies when the frames of sustainability and ecological protection are integrated into the sector frames.

METHODOLOGY

For this study a qualitative approach has been adopted based on the documentary analysis and semi-structured interviews. The analysis is made in two steps.

First, a thematic content analysis has been used in order to provide a picture of how hydropower is framed by the actors involved in the CIS activity on hydropower, based on the way promoted values, goals, underlying problems and preferred outcomes are articulated in policy documents, hydropower associations and NGO's official reports, as well as CIS related documents. To complement this information, we conducted twelve semi-structured telephone and face-to-face interviews between April 2014 and February 2015 with a range of stakeholders including personnel of DG environment and energy, environmental groups, hydropower industry and member states representatives.

The questions and themes used in order to trace the dominant policy frames while analyzing both documents and interview transcripts are related to:

- Promoted Values: what values are promoted and what is the role of hydropower in promoting those values?
- Policy objectives: what overarching policy objectives are stated for the hydropower from the different actors (what are their main interests?)
- Underlying problems: What are the main problems in relation to hydropower?
- Policy strategies: what solutions are presented to the perceived problems and how are the policy objectives to be achieved (what should be done about the problems)?

Based on the typology of frames developed by Shmueli and Ben-gal (2003) - values and identity, phrasing, substance and process frames - we map the different stakeholders' frames and use them as a tool for detecting frame conflicts and for understanding the implementation challenges (see Table 1).

Values and identity frames deal with the value-based elements that dominate the decision-making processes of interested parties and how these parties view fundamental values. Phrasing frames are related to how the parties focus on the conflict and formulate issues (e.g. win-lose or win-win). Substance frames consist of three subframes: i) interests of stakeholders (why stakeholders have specific positions or views); ii) issues or what is perceived as a problem to address; and iii) outcomes (how to achieve the solutions) expressed by each stakeholder. Process frames illustrate how the conflict is perceived to have been handled (e.g. fair and inclusive, how and by whom decisions have been made etc.)

Second, through a documentary study using qualitative content analysis (Kohlbacher, 2006) - focus on the statements related to EPI, from 2001 to 2012 - we trace the development of the idea and goal of EPI inside the CIS in order to assess how the process of policy integration between energy and environmental goals is being pursued at the CIS level. The CIS guidance documents and outcomes of the CIS workshops in relation to "Hydro-morphology" and "Hydropower" have been particularly important for the understanding of the current debates. The documentary study has been complemented by an analysis of the transcripts from twelve semi-structured interviews with key actors involved in drafting and negotiating the CIS guidance documents and the implementation of

1
2
3 the WFD at the national level. Hence, we have analysed the documents and interview transcriptions,
4 seen if the theme of environmental policy integration has emerged and if in time there has been any
5 development or shift in the understanding and meaning of EPI. Table 2 offers a timeline of key
6 events/documents analysed.
7
8
9

10 **ANALYZING HYDROPOWER POLICY FRAMES AND CONFLICTING POLICIES** 11 **OBJECTIVES INSIDE THE CIS** 12

13
14 The political context in which hydropower is situated is characterized by a multiplicity of
15 stakeholders with competing frames and interests, which battle to get their policy views represented
16 in the decisions made at the EU level and inside the Common Implementation Strategy for the WFD.
17

18
19 Two clear coalitions have created around the interpretation of the WFD in relation to
20 hydromorphological changes and the elaboration of the guidance documents. On one side, there is an
21 international lobby coalition of environmental NGOs composed by the European Environmental
22 Bureau, the World Wild Fund and others (the EEB/WWF coalition), which highlights the ecological
23 disruption that derives from the use of hydropower (EEB, 2001; WWF and EEB, 2004; 2010).
24 Principally driven by ecological values, these actors frame *hydropower as a risk* for the environment
25 and pursue a strict implementation of the WFD legal provisions. On the other, hydropower
26 companies, Eurelectric (the European-level sector association representing the electricity industry),
27 central governments of member states and DG Energy bring forward a common discourse stressing
28 the role of hydropower as a renewable energy source in fighting climate change (*hydropower for*
29 *climate*) and increasing security of electricity supply (*hydropower for energy security*) (DG Energy,
30 2013; Eurelectric, 2011; EREC, 2010, interview with stakeholders, 2014). The same RES Directive
31 defines hydropower as a renewable source utilizable for the achievement of renewable energy targets
32 (Art. 2a). The Climate change and security “lenses” are further strengthened by the economic
33 orientation of the industry representatives which highlight the social benefits and economic
34 profitability of hydropower, meanwhile expressing strongly their concerns for the economic
35 consequences of the WFD implementation such as: additional expenditures and investments for
36 restoration and mitigation measures; loss of the technical production capacity of hydropower plants
37 (i.e. due to requirements for undisturbed flow regime or minim flow release); the instability of the
38 financial environment for existing operative hydropower plants, as well as the development of new
39 facilities (Euroelectric, 2005; 2011; VGB, 2005; ESHA, 2007, interview with hydropower
40 stakeholder, 2014). The economic burden on the hydropower industry for investments strengthens
41 the requests for flexibility in implementation of the WFD goals (e.g. a broader interpretation of the
42 designation of HMWB, extension of deadlines), making cost- acceptance and implementation
43 certainly more challenging.
44
45
46
47
48
49

50 Table 1 represents in a schematic way the value and substantive frames of the different stakeholders
51 involved in the CIS activity related to hydropower and hydromorphology, reporting on their values,
52 main interests, concerns and preferred outcomes - each of them emphasizing reasons for advancing
53 or restricting hydropower.
54

55 Interviews and the analysis show that member states and the European Commission (EC) are both
56 unable to speak with one voice due to diverse and coexisting economic, social and environmental
57
58

orientations and pressures. Looking at the EU it is possible to notice both the strong emphasis on energy policy, energy security and climate change, as expressed in the 2020 Climate and Energy Package, the 2050 roadmap (EC, 2011), and the green paper (EC, 2013), as well as a strong signal in relation to the ecological protection of water bodies and integration of sectoral policy goals through the WFD and the latest Blueprint to Safeguard Europe's Water Resources (EC, 2012). Meanwhile the different Directorate-Generals (DGs) for energy, environment and climate action carry on their agendas, in the light of different interests and concern the Commission at large is focused on assisting and ensuring a prompt implementation of the EU directives, as well as avoiding costly litigation among the different parties involved in the negotiations and implementation processes. Looking at national governments of member states, their involvement inside the CIS platform and implementation of the WFD varies greatly due to differences in existing water management practices, hydropower generation capacity and renewable targets, as well as the status of their waters and number of designated HMWB. The mixed quality of the first River Basin Management Plans (RBMPs) and program of measures, as well as the respect of the deadline for their adoption and reporting represent an example of these differences. At the beginning of 2012, four member states - Belgium, Greece, Portugal and Spain - had not yet adopted RBMPs, leading the Commission to take legal action against them (ECJ, C-297/11; C-366/11; C-403/11; C-223/11).

Table 1. Overview of stakeholders values and identity frames, substance and phrasing frames in relation to the WFD implementation and hydropower. **Source:** Compiled by the authors.

The mapping in Table 1 shows that most of the conflicts within the substance frames arise from the differences among stakeholders' interest and outcome subframes. The environmental groups aspire to have protection and restoration of the good ecological status of all waters as well as biodiversity, which conflicts with the hydropower industry and authorities' goals to continue operating and increase the number and production of hydropower plants (water quality and biodiversity vs. electricity generation). At the same time, another conflict is highlighted between environmental concerns – water quality and biodiversity vs. climate change mitigation. The current revival of hydropower is advocated by the hydropower industry, member states and DG Energy and DG Climate as an instrument for the fulfillment of energy needs in ways that mitigate the effects of climate change, considered one of the major environmental issues on the political agenda of EU political leaders nowadays. Nevertheless, NGOs continuously report severe environmental impacts of hydropower, meanwhile highlighting the lack of explicit acknowledgement to climate risks in national governments plans (interview with NGOs, 2014). Looking at the outcome sub-frame, the mapping reveals a consensus between the European commission, member states' authorities and industry in terms of the willingness to achieve an agreement through a give-and-take process (implementation of mitigation measures in change of a more flexible implementation of the WFD) (interview with stakeholder, DG ENER, DG ENV, 2014), while for the NGO coalition the outcome frame calls for a stronger enforcement (interview with NGO, 2014).

ANALYSING POLICY INTEGRATION AT THE CIS LEVEL

In the light of the complexity deriving from the legal text of the WFD and the plurality of interests and concerns in relation to hydropower, the CIS for the WFD has represented a multi-stakeholder platform for the management of the conflicts towards the achievement of “coherence between the implementation of the WFD and other sectoral and structural policies” (CIS, 2001). This dynamic and informal process was initiated by the European Commission, members states and Norway, and later extended to environmental NGOs and other directly involved actors such as HP companies in order to guide the implementation by developing specific guidelines. With direct relevance for the hydropower sector, a CIS working group on hydromorphology was established to develop guidance on the process of Heavily Modified Water Bodies designation, report findings and share best practices from elaborated case studies.

The analysis of the documents elaborated under the CIS activity show that the strategy is based on a collaborative approach where different frames are connected in order to allow for their exploration, common understanding of the technical and scientific implications of the WFD, negotiation and the achievement of win-win situations. Hence, in line with the research of integrative solutions (Schön and Rein, 2004; Winship, 2006), stakeholders involved in and affected by the WFD implementation have had the chance to meet, uncover and share their underlying values, interests and concerns, as well as reflect on how to reconcile the different goals. As shown in Table 2, in the last decade the integration goal already expressed in the WFD’s (WFD: 2000: preamble 16) has had its own excursus inside the CIS in relation to hydromorphology and hydropower. With the assistance of a facilitator (Ecologic, a transdisciplinary research organization), in the course of the different workshops and documents, discussions have addressed the opportunity for synergies between renewable electricity through hydropower and water status protection focusing on the concept of “balance”, the importance of “flexibility” that member states have in setting the different objectives for water bodies, and the relevance of the hydropower sector as well as proper integration of energy and water policy for the successful implementation of the Directives (Ecologic, 2005; CIS, 2007; Ecologic, 2009; Water Directors, 2010; Arcadis, 2011; CIS, 2012).

Examples of integrative and win-win solutions suggested inside the CIS have consisted in the combination of hydropower refurbishment and modernization with ecological mitigation measures in a way that hydropower producers could increase the efficiency and installed capacity of existing hydropower plants, thus the electricity production, meanwhile contributing to ecological improvements by increasing the minimum flow and installing new turbines (CIS, 2006; Ecologic, 2011).

Table 2. Timeline of key events/documents in relation to the integration goal.

Source: Compiled by the authors.

THE DUAL ENVIRONMENTAL CONFLICT

The integration issue between energy and water protection, involves thinking and action in order to reconcile not only two different sectoral goals, but also different environmental concerns such as climate change and water quality. Although climate change is not integrated inside the WFD, the European Commission has since 2007 started addressing this dual environmental challenge inside an ad hoc CIS activity on Climate Change and Water (CIS, 2008: 15). Some more steps have been done with the EC White Paper (COM/2009/147) and the elaboration of CIS Guidance Document No.24 (CIS, 2009: 69), which aim to find a “well-balanced approach” and integrate climate change adaptation into the implementation of the EU water policy by building it into the elaboration and implementation of the River Basin Management Plans. As the second cycle of River Basin Management Plans will be available only in 2015, it remains to see how climate change issues will be integrated into the plans.

Parallel to the weak consideration of climate change issues into water policies, previous studies have highlighted the lack of water-management goals in EU climate change policies, which reinforces the need to have a better understanding among policy makers and industry of the challenging nexus (Henriksen *et al.*, 2011; Opperman *et al.*, 2011; Pitock, 2011). A reason for such a poor cross-sectoral policy integration could be represented by the fact that energy, climate and environmental policies are promoted and enhanced by different Directorates General (Environment, Energy, and Climate Action), which are influenced by different lobby groups’ pressures. While the creation in 2010 of a new DG for Climate Action beside the DG Environment indicates a will by the EU to reinforce the policies within these areas, it might risk weakening the coherence and integration among them, allowing for different agendas and priorities. Hence, successful policy integration seems to be hindered by the traditional and parallel operating actors around the different DGs as developed over time (Jordan and Schout, 2006).

HOW SUCCESSFUL HAS THE CIS BEEN SO FAR?

The final reports and policy papers tend to hide traces of the conflicts and give a “tidy” picture of the relations among stakeholders. NGOs involved in the discussions have highlighted how the CIS has tended to overemphasize win-win situations; meanwhile the conflict dynamics that mirror sectoral interests at the national and European level are reproduced and perpetuated (WWF and EEB, 2005; EEB, 2010; interviews with NGOs, 2015). Actively involved both at political and technical levels in the CIS, NGOs have covered a “watchdog role” supported by DG Environment, in order to ensure a clear and inclusive interpretation of the environmental issues, and that outcomes of this process reflect as much as possible the WFD legal obligations. During the last decade they have reported on several conflicts that emerged inside the CIS among which, the interpretation of the WFD and the elaboration of guidelines, the respect of the designating criteria of water bodies, as well as the use of HMWB.

NGOs claim that the quality of the guidance documents has been mixed and characterized by lack of clarity in the interpretation of legal provisions, as well as not having very ambitious

1
2
3 recommendations. The cause of these low ambitions is attributed to the consensus-based type of
4 decision making process which takes place inside the Strategic Coordination Group and at the Water
5 Directors' level. As the elaboration of the guidance documents needs the approval of the CIS
6 stakeholders involved, this has signified that compromises made in order to succeed have reflected
7 the lowest common denominator instead of the most ambitious goal, especially in relation to the
8 designation of HMWB and the use of exemptions (WWF and EEB, 2004; 2005; EEB, 2010).
9 Touching briefly upon the nexus between hydropower generation and the designation of HMWB,
10 NGOs have criticized the little respect of member states for the designation criteria of water bodies
11 decided already in a concerted action inside CIS guidance documents. In addition, they have
12 underline the excessive and not transparent use of exemptions, defining it as still "the most common
13 way to avoid moving on from old approaches" (Reinvang *et al.* 2004; EEB, 2010).
14
15
16
17

18 In front of this perspective, notwithstanding the efforts to smooth tensions and find the "right
19 balance", the CIS multitude of interests and stakeholders suggests that this platform should be seen
20 not only as a place of encounter but, especially as a place of struggle among the different values and
21 powers (interviews with stakeholders, 2014-2015). Value conflicts have thus raised questions about
22 the relative importance of values that have not been resolved yet. The goal of increasing energy
23 security and mitigating climate change through hydropower does constrain the WFD goals and vice
24 versa and a proof of the persistent struggle and difficulty to achieve integration is represented by the
25 weak elaboration of the first River Basin Management Plans and the associated programs of
26 measures, where less stringent objectives on the ecological status of water have been justified by the
27 need to give priority to energy security and climate change mitigation measures. The EC has
28 highlighted that for reasons related to inadequate setting of objectives at the river basin level and
29 extension of deadlines, the objective of the WFD will not be fully achieved by 2015 (EC, 2012b). In
30 line with the frame theory, the CIS stakeholders' have historically been driven by different values
31 and interests and the conflict between them lies deep down in the strength of the identity frames and
32 interests which they carry along with the hope of clearer direction and prioritization from the EU
33 level (Gray, 2004). While on the one hand the Commission tries to label the issue as a potential win-
34 win by seeking reconciliation among the different interests and needs, from the perspective of NGOs
35 and the hydropower industry it would appear to be more of a win-lose situation.
36
37
38
39
40
41

42 Despite the collaborative approach promoted within the CIS, the mapping of the different
43 stakeholders' frames shows that the conflict between the two main coalitions has not been resolved
44 yet. Controversies related to water management and hydropower have long existed and the CIS is a
45 practical example of their perpetuation. In fact, the groups of actors which have so far shaped the
46 discussion related to hydropower inside the CIS meetings are the same - despite the more specific
47 composition in relation to the HMWB and the Hydropower activity - that lead the negotiation
48 process and battled for the WFD elaboration between 1998 and 2000 (Kaila and Page, 2003). After
49 more than ten years from its adoption, these actors are still very active in trying to secure that the CIS
50 interpretation of the directive and the common guidance documents are as close as possible to their
51 own interests. For this reason, their positions in the negotiation process for the interpretation,
52 elaboration of guidelines and WFD implementation today are as different as their first reactions in
53 relation to the result of the WFD final draft in December 2000.
54
55
56
57
58
59
60

Hence, in spite of ambitious integration wording in both the WFD and the CIS guidance and policy documents, interviews and the document analysis show that energy policy in combination with sustainable economic growth interests remain dominant and act as a barrier on the integration and coherence of water and energy policies. The failure to integrate has been openly recognized by the Commission as the main cause for the failure of achieving the WFD goals (EC, 2012a: 4). Additionally, it emerges that inside the CIS there is no clear and uniform conceptualization of environmental policy integration. The principled priority of EPI emphasized by Lenschow (2002b) and Lafferty (2004) seems to be set aside by the idea that “Integration is about getting the right balance” (Ecologic, 2005; 2011; CIS, 2009; interview with stakeholders, 2015), although it remains undefined what this implies. Under this perspective, the CIS activity seems to represent so far a “weak” case of EPI where economy and security arguments are prioritized over environmental concerns.

CONCLUSION AND IMPLICATIONS

The unfolding of the discussions inside the CIS and the mapping of the different frames have shown that old conflicts and controversies related to the hydropower technology have been reopened and reframed in order to accommodate both the energy security issue and the EU sustainability and climate change discourse (Fletcher, 2010). Powerful economic players such as the hydropower industry and member states use these common frames to protect their status quo and economic interests. From the analysis in this article the following conclusions can be draw.

First, despite the CIS efforts to bridge the different policy goals, the WFD and the RES directive clearly involve trade-offs that struggle to be reconciled among concerns for secure energy supply, climate change mitigation and improved water quality. Indeed, by looking at the environmental benefits of the European water policy, these are spread across the society and may become apparent only in the longer run. On the contrary, the costs of the required environmental improvements are immediate and weight on the specific group of hydropower producers. In the same way, the environmental benefits of global climate change mitigation through hydropower are likely to be felt in a very long run, if not at all in some regions, while its environmental costs on water ecosystems and services are immediate and specifically localized.

Second, in front of this conflict, the CIS has provided a relevant platform for dialogue, understanding, and reframing of these issues among various actors and coalitions which have hardly spoken the same language, nor worked together towards the creation of a win-win situation. Under this perspective, this multi-stakeholder platform represents an important step forward in trying to strike a “balance” between the different goals. Nevertheless, the CIS fails in several occasions to explain how to achieve the right balance and leaves unclear what specifically has to be integrated and to what degree. Meanwhile, the plurality and diversity of values, interests and concerns that exists and co-evolves in this policy arena has demonstrated to be far too strong, influencing not only the interpretation of the directive but also the strength of the concept of environmental policy integration. This article highlights in line with previous research that despite the auspicated compatibility of environmental, social and economic goals at the global and European level, their

1
2
3 simultaneous achievement might be impossible at the national or sectoral level. Hence, in order to
4 reduce ambiguity and complexity levels, a prioritization between the water, climate and energy
5 policy goals might be needed, with the possibility of having real winners and losers of the integration
6 process (Lenschow, 2002a).
7

8
9 Third, while representing a hard case for the EU renewable energy sector and the definition of
10 sustainability, the integration failure has direct implications for policy decision makers and the
11 hydropower industry. This article shows in line with previous research (Jordan and Schout, 2006:83;
12 Jans, 2011:1538) that the great difference in values between stakeholders and the parallel DGs
13 operating in combination with a weak position of DG Environment and the environmental coalition
14 have created a blurred status and a weak meaning of the environmental policy integration. Under
15 this perspective, the implementation of the integration principle strongly depends on the willingness
16 and efforts by other DGs and member states. As a consequence, the lack of clear guidance in
17 integration and prioritization of goals from the European level implies that the challenge of striking
18 the right balance weights on the national and regional governments, where problems and conflicts
19 are expected to be even more intense.
20
21
22

23
24 Finally, by highlighting the complex and fundamental links between the water, energy and climate
25 policy, as well as their contradictions, the article facilitates their understanding for policy makers and
26 water managers, which in turn improves their cooperation with the hydropower industry, towards the
27 development of effective policies and solutions to current issues, as well as investment strategies for
28 a sustainable future (Hussey and Pittock, 2012). On the other hand, academic research has the
29 important opportunity to unfold what “striking the right balance” signifies on a case-by-case basis,
30 exploring how authorities of member states and river basins pave the way in relation to the energy-
31 water conflict, as well as to the dual environmental challenge. For this reason, further research
32 should focus on the analysis of the WFD implementation in member states with hydropower activity
33 in order to assess how EPI is pursued and what is the hydropower sector outcome.
34
35
36

37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

References

- Acreman M, Ferguson A. 2010. Environmental flows and the European Water Framework Directive. *Freshwater Biology* 55(1):32-48.
- ARCADIS. 2011. Hydropower generation in the context of the WFD. Project N°11418. Brussels.
http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/implementation_conventio/hydropower_september/11418_110516pdf/EN_1.0_&a=d
- Beunen R, van der Knaap WGM, Biesbroek GR. 2009. Implementation and integration of EU environmental directives. Experiences from the Netherlands. *Environmental Policy and Governance* 19: 57–69. DOI: 10.1002/eet.495
- Bulkeley H. 2006. Urban sustainability: learning from best practice? *Environment and Planning A* 38: 1029 - 1044
- Bunn SE, Arthington AH. 2002. Basic principles and ecological consequences of altered flow regimes for aquatic biodiversity. *Environmental Management* 30(4): 492-507.
- CIS. 2006. WFD and Hydro-morphological pressures. POLICY PAPER. Focus on hydropower, navigation and flood defence activities. Recommendations for better policy integration. Luxemburg, Office for Official Publications of

- 1
2
3 the European Communities. [http://www.sednet.org/download/Policy_paper_WFD_and_Hydro-](http://www.sednet.org/download/Policy_paper_WFD_and_Hydro-morphological_pressures.pdf)
4 [morphological_pressures.pdf](http://www.sednet.org/download/Policy_paper_WFD_and_Hydro-morphological_pressures.pdf)
5
6 Collier U. 1994. Energy and Environment in the European Union, Aldershot: Ashgate.
7
8 CIS. 2009. Key Conclusions. Heavily Modified Water Bodies: "Information Exchange on Designation, Assessment of
9 Ecological Potential, Objective Setting and Measures". Document as prepared for the CIS Workshop, Brussels,
10 12-13 March 2009. <http://www.ecologic-events.de/hmwb/documents/FinalHMWBConclusions.pdf>
11
12 CIS. 2009. Guidance document No. 24. RIVER BASIN MANAGEMENT IN A CHANGING CLIMATE. Sweden.
13 <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>
14
15 CIS. 2001. Strategic Document: as agreed by the Water Directors under Swedish Presidency. 2 May 2001.
16 <http://ec.europa.eu/environment/water/water-framework/objectives/pdf/strategy.pdf>
17
18 CIS. 2008. Policy paper on Climate Change and Water. Brdo, Slovenia.
19 <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>
20
21 Council of the European Union. 2000. Directive 2000/60/EC of the European Parliament and of the Council of 23
22 October 2000 establishing a framework for Community action in the field of water policy. *Official Journal of the*
23 *European Union* 327: 0001–0073.
24
25 Council of the European Union. 2009. Directive 2009/28/EC of the European Parliament and of the Council of 23 April
26 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing
27 Directives 2001/77/EC and 2003/30/EC. *Official Journal of the European Union* 140: 0016–0060.
28
29 Dewulf A, Craps M, Bouwen R, Pahl-Wostl C. 2005. Integrated management of natural resources dealing with
30 ambiguous issues, multiple actors and diverging frames. *Water Science and Technology* 52(6):115–124.
31
32 DG Energy. 2013. The future role and challenges of Energy Storage. DG ENER Working paper.
33 http://ec.europa.eu/energy/sites/ener/files/energy_storage.pdf
34
35 Ecologic Institute, 2005. WFD and Hydromorphology: Workshop summary report. Document prepared for in relation to
36 the CIS Workshop, 17-19 October 2005, in Prague. [http://www.ecologic-](http://www.ecologic-events.de/hydromorphology/documents/967_summary.pdf)
37 [events.de/hydromorphology/documents/967_summary.pdf](http://www.ecologic-events.de/hydromorphology/documents/967_summary.pdf)
38
39 Ecologic Institute. 2007. WFD & Hydropower, Common Implementation Strategy Workshop. Key Conclusions.
40 http://www.ecologic-events.de/hydropower/documents/key_conclusions.pdf
41
42 Ecologic Institute. 2009. Heavily Modified Water Bodies: Information Exchange on Designation, Assessment of
43 Ecological Potential, Objective Setting and Measures. Ecologic Institute, 23.04.2009. [http://www.ecologic-](http://www.ecologic-events.de/hmwb/documents/Discussion_Paper_Updated.pdf)
44 [events.de/hmwb/documents/Discussion_Paper_Updated.pdf](http://www.ecologic-events.de/hmwb/documents/Discussion_Paper_Updated.pdf)
45
46 Ecologic Institute. 2011. Water management, Water Framework Directive & Hydropower. Issue Paper. Document
47 prepared for the CIS Workshop in Brussels, 13-14 September 2011. [http://www.ecologic-](http://www.ecologic-events.eu/hydropower2/documents/IssuePaper_final.pdf)
48 [events.eu/hydropower2/documents/IssuePaper_final.pdf](http://www.ecologic-events.eu/hydropower2/documents/IssuePaper_final.pdf)
49
50 Eurelectric. 2005. Consistency and Coherence of the EU Directives and Regulations. Working Group Perspective. Ref:
51 2005-120-0004. Eurelectric: Brussels.
52
53 Eurelectric. 2011. *Hydro in Europe: Powering Renewables*. Report of the EURELECTRIC Renewables Action Plan
54 (RESAP). Brussels, Belgium. [http://www.eurelectric.org/media/26690/hydro_report_final-2011-160-0011-01-](http://www.eurelectric.org/media/26690/hydro_report_final-2011-160-0011-01-e.pdf)
55 [e.pdf](http://www.eurelectric.org/media/26690/hydro_report_final-2011-160-0011-01-e.pdf)
56
57
58
59
60

- 1
2
3 European Commission (EC). 2009. WHITE PAPER. Adapting to climate change: Towards a European framework for
4 action. COM/2009/147. Brussels. [http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0147:FIN:EN:PDF)
5 [lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0147:FIN:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0147:FIN:EN:PDF)
6
- 7 European Commission (EC). 2011. A roadmap for moving to a competitive low carbon economy in 2050. Brussels,
8 Belgium. 8.3.2011. COM (2011) 112. Brussels. [http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF)
9 [lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF)
10
- 11 European Commission (EC). 2012a. A Blueprint to Safeguard Europe's Water Resources. COM (2012) 0673. Brussels.
12 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52012DC0673:EN:NOT>.
13
- 14 European Commission (EC). 2012b. Report from the Commission to the European Parliament and the Council on the
15 Implementation of the Water Framework Directive (2000/60/EC): River Basin Management Plans (Text with
16 EEA relevance). COM(2012) 670. Brussels. [http://ec.europa.eu/environment/water/water-framework/pdf/COM-](http://ec.europa.eu/environment/water/water-framework/pdf/COM-2012-670_EN.pdf)
17 [2012-670_EN.pdf](http://ec.europa.eu/environment/water/water-framework/pdf/COM-2012-670_EN.pdf)
18
- 19 European Commission (EC). 2013. Green Paper: A 2030 framework for climate and energy policies. COM (2013) 0169.
20 Brussels. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52013DC0169:EN:NOT>
21
- 22 European Court of Justice. 2011. C-297/11.
23
- 24 European Court of Justice. 2011. C-366/11.
25
- 26 European Court of Justice. 2011. C-403/11.
27
- 28 European Court of Justice. 2011. C-223/11.
29
- 30 European Environmental Agency (EEA). 2010. The European Environment – State and Outlook 2010 – Synthesis. EEA:
31 Copenhagen.
32
- 33 European Environmental Agency (EEA). 2011. EEA Report on NREAPs, 2011. EEA: Copenhagen.
34
- 35 European Environmental Bureau (EEB). 2001. Handbook on EU Water Policy under the Water Framework Directive.
36 Brussels, Belgium. http://www.rec.sk/REC_SK_Eng/EEB%20Water%20Handbook%20Absolut%20Final%202001.pdf
37
- 38 European Environmental Bureau (EEB). 2010. 10 Years of the Water Framework Directive: A Toothless Tiger? - A
39 Snapshot Assessment of EU Environmental Ambitions. Brussels, Belgium.
40 <http://www.eeb.org/?LinkServID=B1E256EB-DBC1-AA1C-DBA46F91C9118E7D&showMeta=0>
41
- 42 European Renewable Energy Council (EREC). 2010. Re-thinking 2050: A 100% Renewable Energy Vision for the
43 European Union. Brussels, Belgium.
44 http://www.rethinking2050.eu/fileadmin/documents/ReThinking2050_full_version_final.pdf.
45
- 46 European Small Hydropower Association (ESHA). 2004. Contradictions between the Water Framework Directive and
47 the RES-electricity Directive. Bruxelles, Belgium.
48 [http://www.esha.be/fileadmin/esha_files/documents/publications/position_papers/Contradictions_between_WFD](http://www.esha.be/fileadmin/esha_files/documents/publications/position_papers/Contradictions_between_WFD_and_RES-e_DirectiveI.pdf)
49 [and_RES-e_DirectiveI.pdf](http://www.esha.be/fileadmin/esha_files/documents/publications/position_papers/Contradictions_between_WFD_and_RES-e_DirectiveI.pdf)
50
- 51 European Small Hydropower Association (ESHA). 2007. Administrative Barriers for Small Hydropower Development in
52 Europe. Brussels, Belgium.
53 http://www.esha.be/fileadmin/esha_files/documents/publications/position_papers/ESHA_contribution_to_Administrative_barriers_workshop_IEEA_.pdf. (accessed 01.11.2012)
54
55
56
57
58
59
60

- 1
2
3 Fletcher R. 2010. When Environmental issues Collide: Climate change and the Shifting political ecology of hydroelectric
4 Power. *Peace and Conflict Review* 5(1): 14-30.
5
6 Gimeno-Gutiérrez Marcos, Lacal-Arántegui Roberto, 2013, Assessment of the European potential for pumped
7 hydropower energy storage. A GIS-based assessment of pumped hydropower storage potential. European Commission.
8 Joint Research Centre Scientific and Policy Reports, Institute for Energy and Transport. Luxembourg: Publications
9 Office of the European Union, 2013. Doi:10.2790/86815.
10
11 Gray B. 2004. Strong Opposition: Frame-based Resistance to Collaboration. *Journal of Community & Applied Social*
12 *Psychology* 14:166-176.
13
14 Henriksen CB, Hussey K, Holm PE. 2011. Exploiting soil-management strategies for climate mitigation in the European
15 Union: maximizing “win-win” solutions across policy regimes. *Ecology and Society* 16(4): 22.
16 <http://dx.doi.org/10.5751/ES-04176-160422>
17
18 Hussey K, Pittock J. 2012. The Energy–Water Nexus: Managing the Links between Energy and Water for a Sustainable
19 Future. *Ecology and Society* 17(1): 31. <http://dx.doi.org/10.5751/ES-04641-170131>
20
21 Jackson ALR. 2011. Renewable energy vs. biodiversity: Policy conflicts and the future of nature conservation. *Global*
22 *Environmental Change* 21: 1195-1208.
23
24 Jachtenfuchs M, 1996 International Policy-making as a Learning Process? (Avebury, Aldershot, Hants)
25
26 Jans JH. 2011. Stop the integration principle? *Fordham International Law Journal* 33(5): 1533-1547.
27
28 Jordan AJ, Lenschow A. 2008. Innovation in Environmental Policy? Integrating the Environment for Sustainability.
29 Edward Elgar : Cheltenham.
30
31 Jordan AJ, Lenschow A. 2010. Environmental policy integration: a state of the art review. *Environmental Policy and*
32 *Governance* 20: 147–158. doi: 10.1002/eet.539
33
34 Jordan AJ, Schout JA. 2006. The Coordination of European Governance: Exploring the Capacities for Networked
35 Governance. Oxford University Press: Oxford.
36
37 Kaika M, Page B. 2003. The EU Water Framework Directive. Part 1. European Policy Making and the Changing
38 Topography of Lobbying. *European Environment* 13: 314-327.
39
40 Keskitalo ECH, Pettersson M. 2012. Implementing Multi-level Governance? The Legal Basis and Implementation of the
41 EU Water Framework Directive for Forestry in Sweden. *Environmental Policy and Governance* 22: 90–103.
42 doi: 10.1002/eet.1574
43
44 Kohlbacher F. 2006. The Use of Qualitative Content Analysis in Case Study Research. *Forum: Qualitative Social*
45 *Research* 7 (1) 21. <http://www.qualitative-research.net/index.php/fqs/index>
46
47 Lafferty W, Hovden E. 2003, Environmental policy integration: towards an analytical framework. *Environmental Politics*
48 12: 1-22.
49
50 Lafferty WM (ed.). 2004. Governance for Sustainable Development. The challenge of adapting form to function. Edward
51 Elgar: Cheltenham.
52
53 Lafferty WM, Ruud A (eds). 2008. Promoting Sustainable Electricity in Europe: Challenging the Path Dependency of
54 Dominant Energy Systems. Edward Elgar: Cheltenham.
55
56 Lenschow A. 2000. Environmental policy integration: Greening sectoral policies in Europe. Earthscan: London.
57
58
59
60

- 1
2
3 Lenschow A. 2002a. "Greening" the European Union - are there lessons to be learned for international environmental
4 policy? *Global Environmental Change* 12: 241-245.
5
6 Lenschow A. 2002b. "Greening the European Union: An introduction". In *Environmental policy integration: Greening*
7 *sectoral policies in Europe (pp. 3-21)*. A. Lenschow. Earthscan: London.
8
9 Liefferink D, Wiering M, Uitenboogaart Y. 2011. The EU Water Framework Directive: A Multi-dimensional analysis of
10 implementation and domestic impact. *Land Use Policy* 28: 712–722.
11
12 McCully P. 1996. *Silenced Rivers: the Politics and the Ecology of Large Dams*. Zed Books: London.
13
14 Newig J, Pahl-Wostl C, Sigel K. 2005. The Role of Public Participation in Managing Uncertainty in the Implementation
15 of the Water Framework Directive. *European Environment* 15: 333–343.
16 <http://onlinelibrary.wiley.com/doi/10.1002/eet.398/pdf>
17
18 Nilsson M. 2005. Learning, frames, and environmental policy integration: the case of Swedish energy policy.
19 *Environment and Planning C: Government and Policy* 23(2) 207 – 226.
20
21 Nilsson M, Zamparutti T, Petersen JE, Nykvist B, Rudberg P, McGuinn J. 2012. Understanding Policy Coherence:
22 Analytical Framework and Examples of Sector–Environment Policy Interactions in the EU. *Environmental Policy*
23 *and Governance* 22: 395–423. doi: 10.1002/eet.1589
24
25 Opperman JJ, Royte J, Banks J, Day LR, Apse C. 2011. The Penobscot River, Maine, USA: a basin-scale approach to
26 balancing power generation and ecosystem restoration. *Ecology and Society* 16(3):7.
27 <http://dx.doi.org/10.5751/ES-04117-160307>
28
29 Pittock J. 2011. National climate change policies and sustainable water management: conflicts and synergies. *Ecology*
30 *and Society* 16(2): 25. <http://www.ecologyandsociety.org/vol16/iss2/art25/>
31
32 Putnam L, Holmer M. 1992. Framing, reframing and issue development. In *Communication and Negotiation*, Putnam L,
33 Rolof M (eds). Sage: London, pp 128-155.
34
35 Rein M, Schon D. 1993. Reframing policy discourse, in *The Argumentative Turn in Policy Analysis and Planning*.
36 Fischer F, Forester J (eds). Duke University Press: Durham, pp 145-166.
37
38 Reinvang R, Steel C, Dønnum BO. 2004. The Water Framework Directive in Norway: An environmental vehicle in need
39 of a jump-start. WWF-Norway, the Norwegian Biodiversity Council (SABIMA) and the Norwegian Association
40 of Hunters and Anglers (NJFF). Oslo, Norway. http://awsassets.wwf.no/downloads/wfd_wwfnorway_report04.pdf
41
42 Rietig K. 2013. Sustainable Climate Policy Integration in the European Union. *Environmental Policy and Governance*
43 23: 297–310. doi: 10.1002/eet.1616
44
45 Rosenberg DM, Bodaly RA, Usher PJ. 1995. Environmental and social impacts of large scale hydroelectric development:
46 who is listening? *Global Environmental Change* 5 (2) 127–148.
47
48 Schön DA, Rein M. 1994. *Frame Reflection: Toward the Resolution of Intractable Policy Controversies*. Basic Books,
49 New York.
50
51 Shmueli D. 2008. "Framing in Geographical Analysis of Environmental Conflicts: Theory, Methodology and Three Case
52 Studies," *GeoForum* 39: 2048-2061.
53
54 Shmueli DF, Ben-Gal M. 2003. Stakeholder Frames in the Mapping of the Lower Kishon River Basin Conflict. *Conflict*
55 *Resolution Quarterly* 21(2).
56
57 Söderberg C, Eckerberg K. 2013. Rising policy conflicts in Europe over bioenergy and forestry. *Forest Policy and*
58 *Economics* 33: 112–119.
59
60

- 1
2
3 van der Heijden J, ten Heuvelhof E. 2012. The Mechanics of Virtue: Lessons on Public Participation from Implementing
4 the Water Framework Directive in the Netherlands. *Environmental Policy and Governance* 22: 177–188.
5 doi: 10.1002/eet.1583
6
- 7 VGB. 2005. The EU Water Framework Directive and its Possible Effects on Hydropower. VGB Report. Available from:
8 [http://www.vgb.org/vgbmultimedia/hydropower/EU+Water+Framework+Directive_VGB+Position+Paper_NEW.](http://www.vgb.org/vgbmultimedia/hydropower/EU+Water+Framework+Directive_VGB+Position+Paper_NEW.pdf)
9 [pdf](http://www.vgb.org/vgbmultimedia/hydropower/EU+Water+Framework+Directive_VGB+Position+Paper_NEW.pdf)
10
- 11 Winship C. 2006. Policy Analysis as Puzzle-Solving. In *Oxford Handbook of Public Policy*, Moran M, Goodin RE, Rein
12 M (eds). Oxford Univeristy Press: Oxford.
13
- 14 WWF, European Environmental Bureau. “Tips and Tricks” for Water Framework Directive Implementation. A resource
15 document for environmental NGOs on the EU guidance for the implementation of the Water Framework
16 Directive. March 2004. Brussels, Belgium.
17 http://www.rivernet.org/general/docs/200403_EEB_WWF_Tips&Tricks.pdf
18
- 19 WWF, European Environmental Bureau. EU water policy: making the water framework directive work. The quality of
20 national transposition and implementation of the water framework directive at the end of 2004. A second
21 “Snapshot” Report – Assessment of results from an environmental NGO questionnaire by the EEB and WWF.
22 February 2005. www.eeb.org/activities/water/making-WFD-work-February05.pdf
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholders	Values and Identity frames	Substance Frames			Phrasing frames
		Interests	Concerns	Desired Outcome	
Hydropower Industry	Economic orientation	<ul style="list-style-type: none"> - Economic viability - Maintenance and increase of the hydropower generation - Stable investment environment - Clear and consistent messages 	<ul style="list-style-type: none"> - High costs for restoration/mitigation - Loss of profitability - Loss of generation capacity - Uncertain terrain for investments 	<ul style="list-style-type: none"> - Agreement with the authorities on standards and programs - Flexibility in implementation 	Win –lose towards win-win
Authorities of Member States	Economic orientation Energy Security orientation	<ul style="list-style-type: none"> - Achievement of renewable energy policy goals - Climate change mitigation - Achievement of Environmental policy goals - Increased electricity generation - Reasonable consumer prices (cheap energy) - Continued economic viability of HP 	<ul style="list-style-type: none"> - Oil dependency - Struggle to comply with RES Directive - Decrease security of supply - High economic costs - High administrative costs - Institutional challenges 	<ul style="list-style-type: none"> - Agreement with the hydropower industry on standards and programs - Flexibility in implementation - Guidance or indication on how to set priorities and strike the balance 	Win-lose towards win-win
European commission (DG Energy – DG Climate – DG Environment)	Energy Security orientation Climate Change and Sustainability orientation Ecological and environmental orientation	<ul style="list-style-type: none"> - Successful Implementation of the WFD and RES directive - Climate change mitigation and adaptation - Avoid litigations and delays - Integration of policy goals 	<ul style="list-style-type: none"> - Risk of wakened policy coherence and integration - Delay in the implementation of the directives - Avoid costly litigations among the different parties involved 	<ul style="list-style-type: none"> - Agreement with the industry and member states on standards and programs - Use of guidance documents 	Win – win
NGOs	Ecological and environmental orientation Justice and rights	<ul style="list-style-type: none"> - Protection/preservation and full restoration of the water courses - Good Ecological Status of all waters - Effective implementation - Participation and transparency 	<ul style="list-style-type: none"> - Poor Water protection - Abuse in the designation of HMWB - Watering down of WFD ambitions - No proper implementation of the WFD goals 	<ul style="list-style-type: none"> - Strong enforcement of the WFD 	Win- lose

Table 1. Overview of stakeholders values and identity frames, substance and phrasing frames in relation to the WFD implementation and hydropower. Compiled by the authors.

Date	Event / Document	Integration/Balance
2000	Water Framework Directive	Preamble 16: "Further integration of protection and sustainable management of water into other Community policy areas such as energy (...) is necessary".
2001	Strategic document as agreed by the Water Directors under Swedish presidency (CIS)	<ul style="list-style-type: none"> - Integration of water policy into other Community policies for ensuring sustainability. - Energy as one of the priority areas of action.
2005	(Ecologic) European Workshop on WFD and Hydromorphology. Workshop summary report.	<ul style="list-style-type: none"> - Successful implementation means achieving an appropriate balance between protection and use. (p.6) - Integration as a two way process. (p.7)
2006	(CIS) WFD and Hydro-morphological pressures: Policy Paper. Focus on hydropower, navigation and flood defence activities. Recommendations for better policy integration.	<ul style="list-style-type: none"> - Recognition of the need and the legitimacy of each policy is the pre-requisite for integration. - Enhancement of the dialogue and the co-operation processes between the different competent authorities, stakeholders and NGOs is a priority task in order to take into account all the interests and to achieve a good balance between water uses and protection. (p.29) - The WFD provides Member States with the flexibility to set different objectives for particular water bodies that reflect environmental, social and economic needs and priorities. - Flexibility means that "... the needs and priorities of other policy areas can be taken into account in water management decisions, through the appropriate use of exemption mechanisms, subject to the application of the exemption tests. At the same time, other policies must also take into account environmental objectives in order to increase synergies and reduce antagonisms." (p.19)
2007	(Ecologic) "WFD & Hydropower", Common Implementation Strategy Workshop. Summary report.	<ul style="list-style-type: none"> - The benefits of hydropower as a highly reliable CO2-free and renewable source of electricity production but also the need to maintain the ecological functions of hydropower-affected water stretches have to be taken both into account to achieve a proper and well-balanced approach to meet climate, water & nature protection objectives. (p.16) - Hydropower is a very important source of renewable energy whose importance may increase in the future, in particular considering current discussions on climate change. (p.3)
2009	(CIS) Workshop on Water Framework Directive and Heavily Modified Water Bodies	Designation of HMWB, identifying GEP and setting objectives is about striking the right balance. (p.3)
2011	(Ecologic) Water management, WaterFramework Directive & Hydropower	<ul style="list-style-type: none"> - Successful implementation of all Directives requires properly integrating energy and water policy. (p.56) - The river basin management planning process provides an opportunity to integrate strategic planning for hydropower development with water environment objectives. (p.58) - Designation of HMWB, identifying GEP and setting objectives is about striking the right balance. (p.73) - Recognition of the "issue of balancing the requirements of the WFD and the Renewable Energy Directive
2011	(Arcadis) Hydropower generation in the context of the WFD	<ul style="list-style-type: none"> - No judgment is available on the right balance between the benefits of the hydropower facility and the benefits of protecting the aquatic environment

2012	(EC) EU Water Blueprint	<ul style="list-style-type: none"> - There is a need for better implementation and increased integration of water policy objectives into other policy areas, such as (...) the policies on renewable energy, transport etc. - Member States should make full use of RBMPs that require an integrated approach to managing water resources across policy areas such as agriculture, aquaculture, energy, transport and integrated disaster management. (p. 6)
------	-------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Table 2. Timeline of key events/documents in relation to the integration goal. Compiled by the authors.

For Peer Review

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49

Striking the Balance between Renewable Energy Generation and Water Status Protection:

Hydropower in the Context of the European Renewable Energy Directive and Water Framework Directive

Keywords: hydropower; Water Framework Directive; environmental policy; environmental policy integration; energy policy; sustainability

For Peer Review

ABSTRACT

This article addresses the theoretical and practical challenge faced by the European policy community and member states of trying to simultaneously pursue renewable energy and environmental goals, as incorporated in the European Union (EU) Renewable Energy Directive and the Water Framework Directive (WFD). Through the case of hydropower which is today at a crossroad between being a renewable electricity source - answering to climate change and energy security concerns - as well as a local environmental challenge in the light of degradation of rivers ecosystem and local biodiversity, the article explores the way renewable energy and water protection objectives are integrated inside the Common Implementation Strategy at the EU level. The illustration of the complex energy-water nexus in the hydropower case, as well as of the challenging negotiation process for policy integration contributes to increasing policymakers' understanding of the issues at stake and the importance of cooperation for the development of sustainable energy generation and economic growth strategies. Conclusions reveal that despite the creation of multi-stakeholder platform for negotiation and collaboration, the plurality and diversity of values and powers in relation to hydropower is still far too strong to be overcome, hindering the integration of water and energy policy concerns and the achievement of the WFD goals. The path towards wider integration of water into the energy policy seems to be still long, unclear and tortuous, requiring the elaboration of additional guidelines, improved planning and target setting tools for the national and local implementation of the different policy goals.

Introduction

Policy issues are often characterized by contested objectives, conflicting values and trade-offs. For this reason, concepts of policy integration, balancing and win-win strategies are central in policy making and implementation. Their relevance has become even more striking in front of the growing and incoherent system of European directives which risks hindering the implementation process and the achievement of the different goals (Eurelectric, 2005; Jordan and Lenschow, 2008; Jackson, 2011). A large share of recent literature has thus focused on how to manage conflicts and foster synergies between legitimate yet conflicting social, economic and environmental goals, towards the achievement of a more sustainable development (Burgess *et al.*, 2006; Beunen *et al.*, 2009; Lafferty, 2004; Nilsson *et al.* 2012; Soderberg and Eckerberg, 2013; Rietig, 2013).

The purpose of this article is to contribute to the broader debate by addressing the theoretical and practical challenge faced by the European policy community and member states of trying to simultaneously pursue renewable energy and environmental goals, as incorporated in the European Renewable Energy Directive (RES) and the Water Framework Directive (WFD). We present here the case of hydropower which is today at a crossroad between being a renewable electricity source - answering to climate change and energy security concerns - as well as a local environmental challenge in the light of degradation of rivers ecosystem and local biodiversity (Rosenberg *et al.*, 1995; McCully, 1996; Bunn and Arthington, 2002).

Hydropower is a mature and well established renewable technology which supplies nowadays over a tenth of the European Union (EU) electricity generation and about 60% of its renewable electricity generation in 2010. It has played an important role in the European economic development in the last 50 years and it is expected to be significantly important in the EU energy scenarios of the coming decades, especially in relation to the increasing penetration of intermittent renewable energy and need of storage capacity (Eurelectric, 2011).

In the light of the RES and the EU climate and energy strategy, hydropower is defined and promoted as a renewable energy source (Art.2) which contributes to the abatement of greenhouse gas emissions, increased security of supply and achievement of mandatory renewable EU and national targets by 2020. On the other hand, hydropower is one of those climate change mitigation measures which do not necessarily contribute to the sustainability goal because of the hydromorphological pressures it causes to water bodies (Rietig, 2013; Fletcher, 2010). Although not directly regulated by the WFD, hydropower is affected by this framework which responds to trends of deterioration of EU water status and aims to protect and ensure the good ecological and good chemical status of all water bodies by 2015 (art. 2.9). Indeed, in the light of the WFD, hydropower has been identified as the third most common water use for designating Heavily Modified Water Bodies (HMWB) (WFD, art. 4.3), which are bodies of water that have been subject to *physical alteration* as well as *substantial changes in character* as a result of human activity which cannot be removed because of the high economic and social cost (Ecologic, 2009; EC, 2012b). For this category of water bodies, the quality target to pursue by 2015 is a less stringent objective which substantiate in the good ecological potential, with possibility of extending the deadline for reaching the targets until 2027 (art. 4a).

Looking at the goals of the two directives per se, there would seem to be no obvious and direct conflict as they both answer to sustainability imperatives, by stimulating positive environmental development and more efficient energy and water policies (Nilsson *et al.*, 2012). Nevertheless, in the case of electricity generation through hydropower, the conflict materializes when pursuing WFD

1
2
3 goals hinders those of the RES directive and vice-versa. This is the case of requirements for
4 modification of existing hydropower facilities that, in order to reach the good ecological status of
5 water bodies impose economic costs and potential losses of technical capacity and economic
6 profitability for the hydropower sector. The conflict is likely to become stronger as climate change
7 and energy policies adopted in its name might require new hydropower schemes that might be
8 hindered in order to comply with the “no deterioration” requirement of the WFD.
9

10 While the interaction of the WFD with other policy goals has been already explored as in the case of
11 the Birds and Habitats Directives (Beunen *et al.*, 2009), forestry (Keskitalo and Pettersson, 2012), or
12 in relation to national and regional implementation challenges (Lieberink *et al.*, 2011) as well as
13 public participation issues (Newig *et al.*, 2005; van der Heijden and ten Heuvelhof, 2012), we find
14 that very little attention has been paid to the interaction of this framework with the renewable energy
15 policy and the RES directive, especially in relation to hydropower (Arcadis, 2011; Nilsson *et al.*,
16 2012). Little is said also about the origin of the complexity, uncertainty and conflict which spreads
17 from the EU level affecting national and regional government where the integration of different
18 concerns has its last instance. We believe the hydropower case, by providing a good illustration to
19 the energy-environment nexus, addresses this research gap and contributes to the theoretical and
20 practical understanding of policy integration challenges and conflicts at the EU level. In addition, it
21 aims to support and reinforce the research need expressed by Rietig (2013) and the argument that
22 climate mitigation measures as hydropower cannot avoid meeting sustainability criteria. The
23 understanding of these challenges is of relevance for policymakers and regulators and assists their
24 work by highlighting the constraints and challenges they face in relation to collaboration and
25 negotiations for policy integration, as well as the opportunities for change.
26

27 The objective of the article is to highlight the conflicting interests and goals between hydropower
28 and the WFD in Europe, as well as, explore and discuss how the different energy and environmental
29 goals are being integrated at the EU level, and which nuance does the integration goal acquire in this
30 case. Instrumental in addressing this issue is the mapping of frames of different stakeholders
31 involved in the implementation of the EU directives in relation to hydropower. We look specifically
32 at the activity taking place inside the Common Implementation Strategy for the WFD (CIS), a multi-
33 stakeholder platform which answers to needs of the EU Commission, EU member states,
34 hydropower industry and environmental NGOs, to manage the complexity of the WFD, as well as to
35 achieve a major integration and balance of the water and energy policy goals.
36

37 Therefore, this article first elaborates on the theoretical importance of frame analysis of
38 environmental issues and the environmental policy integration goal, underlying their relevance for
39 the elaboration of collaborative solutions, conflict management and the integration of different policy
40 goals. Section 3 maps out the arguments for promoting and opposing hydropower in the light of the
41 different values, concerns and aspirations of the stakeholders involved in the CIS. We believe their
42 mapping represents an important starting point for the understanding and discussion of the current
43 situation of the European hydropower sector, as well as, the need to balance energy and water
44 concerns. Section 4 discusses the CIS efforts of conflict management and balancing of the different
45 policy goals, highlighting the difficult and unclear definition of policy integration inside this multi-
46 stakeholder platform. Finally, the concluding session reports on the main findings and discussion
47 points.
48
49
50
51
52
53
54
55
56
57
58
59
60

Framework and method

The issue of reconciling conflicting policy concerns and ends is strictly connected to two relatively extensive literatures which will be briefly presented hereby: the literature on framing of environmental issues and conflict management strategies (Putnam and Holmer, 1992; Schön and Rein, 1994; Gray, 2004; Lewicki *et al.*, 2002; Shmueli and Elliot, 2006; Shmueli, 2008; Dewulf *et al.*, 2005; Burgess *et al.* 2006); and the literature on environmental policy integration (Collier, 1994; Lenschow, 2002; Lafferty, 2004; Lafferty and Knudsen, 2007; Jordan and Lenschow, 2010).

Framing of environmental issues

Frame analysis steams from the objective to explore the ways people see the world, how they make sense of different situations and how future is perceived. Policy frames are defined as

“ways of selecting, organizing, interpreting, and making sense of a complex reality to provide guideposts for knowing, analysing, persuading and acting” (Rein and Schön, 1993, page 146)

Hence, policy frames are lenses form which a complex situation can be made sense of, and they contain objectives, assumptions about problems, and prescription about the suitable way to deal with the issue (Gray, 2004; Dewulf *et al.*, 2005; Shmueli and Elliot, 2006).

In a complex and conflicting situation as the management of water resources in the presence of hydropower production, managing the interdependent uses of water means to deal with the actors’ different values, interests in the natural resource, specific interpretations of the problem at stake and aspirations. The source of the conflict lies therefore in the dissimilar substance frames of stakeholders, given by differences in aspirations, perceived core of the issue, and preferred outcomes (Shmueli and Ben-Gal, 2003; Shmueli, 2008). This said, the intensity of the conflict and its resolution rely on the degree of difference and strength of stakeholders’ values, the way the dispute is labeled (i.e. win-lose or win-win situation), and the terms in which they approach the dispute (i.e. interests, needs, rights or power) which gives an indication of how they want to handle the conflict (Gray, 2004).

In order to manage and resolve the conflict, process of frame reflection, frame alignment and bridging, as well as reframing have been crucial. These processes rely on the role of communication in conflict management (Putnam and Holmen, 2002; Dewulf *et al.*, 2005; Shmueli, 2008). In fact, bringing together and connecting the multiplicity of contending parties’ frames enables confrontation, exploration and negotiation, which increases the possibility for more collaborative and integrative solutions (win-win solutions) (Putnam and Holmen, 2002). In the pioneering work on *Frame Reflection*, Schön and Rein (1994) discuss about the ‘resolution of intractable policy controversies’ as relying on the connection of different frames, where

“positions have been reframed in such a way as to open up to accommodating controversies that had at first seemed hopelessly intractable” (Schön and Rein, 1994, page 57).

On the same line, Winship (2006) elaborates on the concept of integrative solutions defining it as the process of redefinition of the different goals that allows for the creation of win-win scenarios where goals fit into a coherent whole. Recurring to the example of the puzzle solving, dealing with multiple ends is equated somehow to dealing with the solution of a puzzle where the goal is not to choose a single puzzle but to assemble them (puzzling) in a coherent pattern.

Environmental Policy Integration

Environmental Policy Integration (EPI) can be considered a peculiar case of reframing process in which the different economic, environmental and social interests are brought together and the issues are reframed towards the achievement of sustainability (Nilsson, 2005). The integration of environmental goal into the elaboration of other sectoral policies has become a key concept guiding both European and national policy making (Lenschow 2002; Lafferty, 2004). The premise is that increased policy integration leads to better conditions for improving the environmental outcomes of a sector, recognizing the de-coupling of economic drivers from environmental degradation as a crucial concept for the achievement of 'sustainable development' (Lafferty and Ruud, 2008).

Although addressed in a growing body of literature on environmental policy, the concept of EPI has remained "fuzzy" (Lafferty and Hovden, 2003:5). In the early work on EPI, Collier (1994) has identified three objectives of EPI: first, the achievement of sustainable development and the avoidance of environmental damage; second, the elimination of contradictions between and within policies; and third, making policies mutually supportive and reaching win-win solutions (Collier, 1994:36). While the EPI concept for Collier would seem to rely on the balancing of environmental and non-environmental objectives in order to resolve the conflicts between policy objectives and satisfy all affected interests, EPI represents for Lenschow (2002b:6) a "first-order operational principle to implement and institutionalize the idea of sustainable development", and for Lafferty (2004:202) an "overarching societal objectives" thanks to which environmental goals do not become subsidiary.

Additionally, Lafferty (2004:200) highlights the risk associated to the emphasis on "mutual benefits" in the definition of Collier (1994) that is to draw the attention away from the fact that interests may be affected in a negative manner by the application of environmental policy, underestimating the conflicts inherent in the decoupling objective. With direct relevance to the debate on trade-offs and the challenge of making EPI credible and effective, Lenschow (2002a) argues that rather than portraying only win-win scenarios, it is crucial to consider the real numerous conflicts of interests with respect to many environmental issues, as well as prioritize the environment on sectoral issues.

Environmental policy integration results from political negotiation processes where priorities are determined by varying economic and political conditions, as well as the pressures of interest groups. In the present context, EPI provides a reference for analyzing how trade-offs between environmental and energy policy concerns in the case of hydropower are managed inside the CIS.

Method

For this study a qualitative approach has been adopted based on the documentary analysis of different types of documents: the EU WFD and RES directive, the CIS related documents, industry associations and NGOs' reports, as well as a scholar articles related to the topic. Based on the different documents we have categorized data by actor over time in order gain an understanding of their identity and substance frames (interest/concerns/outcomes). The scope of this work has been to understand the different perspectives on hydropower and the way stakeholders frame the issue, as this explains the origin of the conflicts and implementation challenges. Table 1 provides an overview of the different identity and substance frames (interests, concerns, outcomes) of the stakeholders involved in the CIS.

1
2
3 Once traced the different frames, we have analyzed how the complexity deriving from the legal text
4 and the different frames is managed in order to reconcile the main goals behind the RES directive
5 and the WFD. The “CIS guidance documents” and outcomes of the CIS workshops in relation to
6 “Hydro-morphology” and “Hydropower” have represented the sources for the understanding of the
7 current debates and processes going on in relation to the environmental policy integration over time
8 inside the CIS. Due to the impossibility to access directly the CIS floor and meetings, the analysis
9 has focused on documentary data which cover the time period from 2001 through to 2012, by
10 focusing on the statements related to the EPI. Table 2 offers a timeline of key events/documents
11 analyzed in relation to the environmental policy integration goal inside the CIS.
12
13
14
15

16 **Mapping the CIS hydropower frames**

17 The political context in which hydropower is situated is characterized by a multiplicity of
18 stakeholders with competing frames and interests, which battle to get their policy views represented
19 in the decisions taken at the EU level and inside the Common Implementation Strategy for the WFD.
20 Table 1 represents in a schematic way the frames of the different stakeholders involved in the CIS
21 activity related to hydropower and hydromorphology, reporting on their values, main interests,
22 concerns and outcomes.
23
24

25 Two clear coalitions have created around the interpretation of the directive in relation to
26 hydromorphological changes and the elaboration of the guidance documents. At one side, there is an
27 international lobby coalition of environmental NGOs composed by the European Environmental
28 Bureau, the World Wild Fund and others (the EEB/WWF coalition), principally driven by ecological
29 interests pursuing a strict implementation and justice for local communities. At the other side, we
30 find a number of member states and EURELECRIC – the European-level sector association
31 representing the electricity industry - primarily concerns about socio-economic interest and
32 advocating a broader interpretation of the designation of HMWB which includes hydrological
33 changes as irreversible too in the case of hydropower.
34
35

36 As evidenced in Table 1, we can trace 4 different frames, each of them emphasizing reasons for
37 advancing or restricting hydropower. While hydropower producers, central governments and DG
38 Energy bring forward the common discourse stressing the role of hydropower as a renewable energy
39 source in fighting *climate change and energy security* (Euroelectric, 2011; EREC, 2010), NGOs
40 highlight the *ecological disruption* (hydropower as a risk) that derives from the use of this
41 technology and call for a strong enforcement of the WFD provisions (EEB, 2001; WWF and EEB,
42 2004; 2010). The Climate change and security frame is further strengthened by the *economic frame*
43 of the industry representatives which highlight the economic profitability of hydropower, meanwhile
44 expressing strongly their concerns for the economic consequences of the WFD implementation.
45 These last ones are related to: additional expenditures and investments for restoration and mitigation
46 measures; loss of the technical production capacity of hydropower plants (i.e. due to requirements for
47 undisturbed flow regime or minim flow release); and the instability of the financial environment for
48 existing operative hydropower plants, as well as the development of new facilities (Euroelectric,
49 2005; 2011; VGB, 2005; ESHA, 2007). The burden on investments for the hydropower industry
50 makes cost- acceptance and implementation certainly more challenging and difficult.
51
52

53 On the other hand, the analysis shows that national governments and the European Commission (EC)
54 are both unable to speak with one voice due to diverse and coexisting economic, social and
55
56
57
58
59
60

1
2
3 environmental orientation and pressures. Looking at the EU it is possible to notice both, the strong
4 emphasis on energy policy, energy security and climate change, as expressed in the climate and
5 energy package, the 2050 roadmap (EC, 2011), and the green paper (EC, 2013), as well as a strong
6 signal in relation to the ecological protection of water bodies and integration of goals behind sectoral
7 policies through the WFD and the latest Blueprint to Safeguard Europe's Water Resources (EC,
8 2012). Hence, in the light of different interests and concern, the Commission at large is focused on
9 assisting and ensuring a prompt implementation of the EU directives, as well as avoiding costly
10 litigation among the different parties involved in the negotiations and implementation processes.
11 On the other hand, national governments have always been differently involved and committed
12 towards EU water and environmental policy, as this is strictly related to their existing water
13 management practices, hydropower generation capacity and renewable targets, as well as the status
14 of their waters and number of designated HMWB. An example of the differences is confirmed by the
15 mixed quality of the River basin Management Plans and program of measures, as well as, the respect
16 of the deadline for their adoption and reporting. In relation to this, at the beginning of 2012, four
17 Member States - Belgium, Greece, Portugal and Spain - had not yet adopted RBMPs, leading the
18 Commission to take legal action against them (ECJ, C-297/11; C-366/11; C-403/11; C-223/11). In
19 addition, the WFD has already involved consistent administrative demands and costs in terms of
20 organization and monitoring, which will continue to test severely the capacities of the less developed
21 counties through the interventions for the achievement of the “good” status of waters.
22
23
24
25
26
27

28 **Table 1.** Overview of stakeholders values, aspirations and concerns in relation to the WFD
29 implementation and hydropower. **Source:** Compiled by the authors.
30
31
32

33 Discussion

34 This session discusses how different values, interests and concerns are brought together inside the
35 CIS, the way the debate about energy and water policy integration is handled, and which nuances the
36 integration goal acquires inside this multi-stakeholder platform.
37
38

39 Conflict management and policy integration inside the CIS

40 In the light of the complexity deriving from the legal text of the WFD, as well as, the plurality of
41 values and concerns in relation to hydropower, the CIS for the WFD has represented a process for
42 the management of the conflicts towards the achievement of “coherence between the implementation
43 of the WFD and other sectoral and structural policies” (CIS, 2001). The stakeholders involved in the
44 WFD implementation have had the chance to meet, uncover and share their underlying values,
45 aspirations and concerns, as well as reflect on how to balance the different interests. In line with the
46 research of integrative solutions (Schön and Rein, 2004; Winship, 2006), the content of the
47 documents elaborated during the CIS activity indicates that the strategy is based on a collaborative
48 approach where different frames are connected in order to allow for their exploration, common
49 understanding of the technical and scientific implications of the WFD, negotiation and the achievement
50 of win-win situations. Although cross-sectoral policy issues were not largely discussed or
51 highlighted in the first years after the adoption of the WFD, in the light of the mismatch between the
52 socio-economic consequences and the high environmental ambitions and the EC recognition of the
53
54
55
56
57
58
59
60

1
2
3 impossibility of full compliance by 2015, in the last decade steps have been moved forward within
4 the CIS in order to address the challenge. Table 2 provides an overview of the relevant CIS event and
5 documents related to the policy integration and balance concepts.
6

7
8 **Table 2.** Timeline of key events/documents and the integration goal.

9 **Source:** Compiled by the authors.

10
11 The importance and the need for “further integration of protection and sustainable management of
12 water into other Community policy areas such as energy (...)” already expressed in the WFD’s
13 preamble (WFD: 2000:2, preamble 16) has been highlighted in the last decade in several occasions.
14 Particularly relevant in this regard has been the ad hoc CIS activity related to the WFD and hydro-
15 morphology where, with the assistance of a facilitator (Ecologic), discussions have addressed the
16 opportunity for synergies between renewable electricity through hydropower and water status
17 protection (Ecologic, 2005; CIS, 2007; Ecologic, 2009; Water Directors, 2010; Arcadis, 2011; CIS,
18 2012). In this forum, integration is defined as a “two way process” where striking the “appropriate
19 balance between protection and use” is seen as a condition for the successful implementation of the
20 directive and (Ecologic, 2005:6-7). Examples of integrative and win-win solutions suggested inside
21 the CIS have consisted in the combination of hydropower refurbishment and modernization with
22 ecological mitigation measures in a way that hydropower producers could increase the efficiency and
23 installed capacity of hydropower plants, thus the electricity production, meanwhile contributing to
24 ecological improvements by increasing the minimum flow and installing new turbines (CIS, 2006;
25 Ecologic, 2011).
26
27
28
29
30

31 **Recurring themes, divergent views and power struggle**

32 Despite the collaborative approach promoted within the CIS, the mapping of the different
33 stakeholders’ frames shows that the conflict between the two main coalitions has not been resolved
34 yet. Controversies related to water management and hydropower have long existed and the CIS is a
35 practical example of their perpetuation. In fact, the groups of actors which have so far shaped the
36 discussion related to hydropower inside the CIS meetings are the same - despite the more specific
37 composition in relation to the HMWB and the Hydropower activity – that led the negotiation
38 process and battled for the WFD elaboration between 1998 and 2000 (Kaila and Page, 2003). After
39 more than ten years from its adoption, these actors are still very active in trying to secure that the CIS
40 interpretation of the directive and the common guidance documents are as close as possible to their
41 own interests. For this reason, their positions in the negotiation process for the interpretation,
42 elaboration of guidelines and WFD implementation today are as different as their first reactions in
43 relation to the result of the WFD final draft in December 2000.
44

45 The documents analysis indicates that, whereas the final reports and policy papers tend to hide traces
46 of the conflicts and give a “tidy” picture of the relations among stakeholders, NGOs involved in the
47 discussions have highlighted how the CIS has tended to overemphasize win-win situations,
48 meanwhile the conflict dynamics that mirror sectoral interests at the national and European level are
49 reproduced and perpetuated (WWF and EEB, 2005; EEB, 2010). Actively involved both at political
50 and technical levels in the CIS, NGOs have covered a “watchdog role” supported by DG
51 Environment, in order to ensure a clear and inclusive interpretation of the environmental issues, and
52
53
54
55
56
57

1
2
3 that outcomes of this process reflect as much as possible the WFD legal obligations. During the last
4 decade they have reported on several conflicts which have emerged inside the CIS among which, the
5 interpretation of the WFD and the elaboration of guidelines, the respect of the designating criteria of
6 water bodies, as well as, the use of HMWB. These examples follow briefly. NGOs claim that the
7 quality of the guidance documents has been mixed and characterized both by lack of clarity in the
8 interpretation of legal provisions, as well as, not very ambitious recommendations. The cause of
9 these low ambitions is attributed to the consensus-based type of decision making process which takes
10 place inside the Strategic Coordination Group and at the Water Directors' level. As the elaboration of
11 the guidance documents needs the approval of the CIS stakeholders involved, this has signified that
12 compromises made in order to succeed have reflected the lowest common denominator instead of the
13 most ambitious goal, especially in relation to the designation of HMWB and the use of exemptions
14 (WWF and EEB, 2004; 2005; EEB, 2010). Touching briefly upon the nexus between hydropower
15 generation and the designation of HMWB, NGOs have criticized the little respect of member states
16 for the designation criteria of water bodies decided already in a concerted action inside CIS guidance
17 documents. In addition, they have underline the excessive and not transparent use of exemptions
18 defining it as still "the most common way to avoid moving on from old approaches" (Reinvang *et al.*
19 2004; EEB, 2010).

20
21 In front of this perspective, notwithstanding the efforts to smooth tensions and find the "right
22 balance", the CIS multitude of interests and stakeholders evidences that this platform should be seen
23 not only as a place of encounter but, especially as a place of struggle among the different values and
24 powers. Value conflicts have thus raised questions about the relative importance of values that have
25 not been resolved yet. The goal of increasing energy security and mitigating climate change through
26 hydropower does constrain the WFD goals and vice versa and a proof of the persistent struggle and
27 difficulty to achieve integration is represented by the weak elaboration of the first River Basin
28 Management Plans and the associated programs of measures, where less stringent objectives on the
29 ecological status of water have been justified by the need to give priority to energy security and
30 climate change mitigation measures. The EC has highlighted that for reasons related to inadequate
31 setting of objectives at the river basin level and extension of deadlines, the objective of the WFD will
32 not be fully achieved by 2015 (EC, 2012b). In line with the frame theory, the CIS stakeholders' have
33 historically been driven by different values and interests and the conflict between them lies deep
34 down in the strength of the identity frames and interests which they carry along with the hope of
35 clearer direction and prioritization from the EU level (Gray, 2004). While on the one hand the
36 Commission tries to label the issue as a potential win-win by seeking reconciliation among the
37 different interests and needs, from the perspective of NGOs and the hydropower industry it would
38 appear to be more of a win-lose situation with direct influence of their rights and powers.

39
40 To conclude, in spite of ambitious integration wording in both the WFD and the CIS guidance and
41 policy documents, the document analysis shows that energy policy in combination with sustainable
42 economic growth interests remain dominant and act as a barrier on the integration and coherence of
43 water and energy policies. The failure to integrate has been openly recognized by the Commission
44 which has attributed to it the main cause for the failure of achieving the WFD goals (EC, 2012a:4).
45 Additionally, it emerges that inside the CIS there is no clear and uniform conceptualization of the
46 environmental policy integration concept. The principled priority of EPI emphasized by Lenschow
47 (2002) and Lafferty (2004) seems to be set aside by the idea that "Integration is about getting the
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 right balance” (Ecologic, 2005; 2011; CIS, 2009), although it remains undefined what it is implied
4 by “right balance”. Under this perspective, the CIS activity seems to represent so far a “weak” case
5 of EPI where economy and security arguments are prioritized over the environmental concerns.
6
7

8 **The dual environmental conflict**

9 The integration issue between energy and water protection, involves thinking and action in order to
10 reconcile beside two different sectoral goals, also different environmental concerns. Fighting climate
11 change is definitely one of the major environmental issues on the political agenda of EU political
12 leaders nowadays. Nevertheless, fighting it by using all the available means and technologies has
13 proven to create severe environmental impacts, as in the case of hydropower (Rietig, 2013). Despite
14 climate change is not integrated inside the WFD, the EC has started since 2007 addressing this dual
15 environmental challenge inside an ad hoc CIS activity on Climate Change and Water (CIS, 2008:
16 15). Some more steps have been done with the EC White Paper (COM/2009/147) and the elaboration
17 of CIS Guidance Document No.24 (CIS, 2009: 69), which aim to find a “well-balanced approach”
18 and integrate climate change adaptation into implementation of the EU water policy by building it
19 into the elaboration and implementation of the River Basin Management Plans. As the second cycle
20 of River Basin Management Plans will be available only in 2015, it remains to see how climate
21 change issues will be integrated into the plans.
22
23

24 Parallel to the weak consideration of climate change issues into water policies, previous studies have
25 highlighted the lack of water-management goals in EU climate change policies, which reinforces the
26 need to have a better understanding among policy makers and industry of the challenging nexus
27 (Henriksen *et al.*, 2011; Opperman *et al.*, 2011; Pitock, 2011). A reason for such a poor cross-
28 sectoral policy integration could be represented by the fact that energy, climate and environmental
29 policies are promoted and enhanced by different Directorates General (Environment, Energy, and
30 Climate Action), which are influenced by different lobby groups’ pressures. Under this light, while
31 the creation in 2010 of a new DG for Climate Action beside the DG Environment indicates a will of the
32 EU to reinforce the policies within these areas, on the other hand it might risk weakening the coherence
33 and integration among them, allowing for different agendas and priorities. Hence, successful policy
34 integration seems to be hindered by the traditional and parallel operating of actors around the
35 different DGs as developed over time (Jordan and Schout, 2006).
36
37
38
39
40
41
42

43 **Conclusion and implications**

44 The unfolding of the dispute inside the CIS and the mapping of the different frames has shown that
45 old conflicts and controversies related to the hydropower technology have been reopened and
46 reframed in order to accommodate both, the energy security issue and the EU sustainability and
47 climate change discourse (Fletcher, 2010). Powerful economic players as the hydropower industry
48 and some member states use these common frames to protect their status quo and economic interests.
49 From the analysis in this article the following conclusions can be draw.
50

51 First, despite the CIS efforts of bridging the different policy goals, the WFD and the RES directive
52 clearly involve trade-offs among concerns for security of energy supply, climate change mitigation
53 and improved water quality which struggle to be reconciled. Indeed, by looking at the environmental
54 benefits of the European water policy, these are spread across the society and may become apparent
55
56
57
58
59
60

1
2
3 only in the longer run. On the contrary, the costs of the required environmental improvements are
4 immediate and weight on the specific group of hydropower producers. In the same way, the
5 environmental benefits of global climate change mitigation through hydropower are likely to be felt
6 in a very long run, if not at all in some regions, whether its environmental costs on water ecosystems
7 and services are immediate and specifically localized.
8

9
10 In front of this conflict, the CIS has provided a relevant platform for dialogue, understanding, and
11 reframing of these issues among various stakeholders and coalitions which have hardly spoken the
12 same language before, nor worked together towards the creation of a win-win situation. Under this
13 perspective, this multi-stakeholder platform represents an important step forward in trying to strike a
14 “balance” between the different goals. Nevertheless, as we come to see, the plurality and diversity of
15 interests, concerns and powers which exists and co-evolves in this policy arena has demonstrated to
16 be far too strong, influencing not only the interpretation of the directive but also the intrinsic concept
17 of policy integration. After more than ten years of aspirations for greater policy coherence and
18 integration among energy and water policies, their legitimate goals fail to properly integrate, and
19 more importantly, the EU fails to have a clear standing of what environmental policy integration
20 means.
21

22
23 Meanwhile representing a hard case for the EU renewable energy sector and the definition of
24 sustainability, the integration failure has direct implications for policy decision makers and the
25 hydropower industry. This article shows in line with previous research (Jordan and Schout, 2006:83;
26 Jans, 2011:1538) that the great difference in values between stakeholders and the parallel DGs
27 operating, in combination with a weak position of DG Environment and the environmental coalition
28 have created a blurred status and a weak meaning of the environmental policy integration. Instead of
29 affirming the principled priority of environmental goals, the CIS leaves unclear what specifically has
30 to be integrated and in which strength. Under this perspective, the implementation of the integration
31 principle strongly depends on the willingness and efforts by other DGs and member states. As a
32 consequence, the lack of clear guidance in integration and prioritization of goals from the European
33 level implies that the challenge of striking the right balance weights on the national and regional
34 governments, where problems and conflicts are expected to be even more intense.
35

36
37 By highlighting the complex and fundamental links between the water, energy and climate policy, as
38 well as their contradictions, the article facilitates their understanding for policy makers and water
39 managers, which in turn improves their cooperation with the hydropower industry, towards the
40 development of effective policies and solutions to current issues, as well as investment strategies for
41 a sustainable future (Hussey and Pittock, 2012). On the other hand, academic research has the
42 important opportunity to unfold what “striking the right balance” signifies on a case by case basis,
43 exploring how authorities of member states and river basins pave the way in relation to the energy-
44 water conflict, as well as to the dual environmental challenge.
45

46
47 Finally, in relation to the EU sustainability aspiration and the need of an effective response and
48 implementation of EU policies, the multiple goals and challenges clearly highlight the need for an
49 integrated approach. Nevertheless, it is important to recognize that despite the auspicated
50 compatibility of environmental, social and economic goals at the global and European level, their
51 simultaneous achievement might be impossible at the national or sectoral level. As highlighted in
52 this article and in previous research, there is no clear indication on how to strike the right balance
53 and, in order to reduce ambiguity and complexity levels, a hierarchy between the water, climate
54
55
56
57
58
59
60

change and energy policy might be needed, with the possibility of having real winners and losers of the integration process (Persson 2004; Lenschow, 2002a). For this reason, further research should focus on the elaboration of additional guidelines, improved planning and target setting tools for the national and local implementation of the different policy goals.

REFERENCES

- Acreman M, Ferguson A. 2010. Environmental flows and the European Water Framework Directive. *Freshwater Biology* 55(1):32-48.
- ARCADIS. 2011. Hydropower generation in the context of the WFD. Project N°11418. Brussels. http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/implementation_conventio/hydropower_september/11418_110516pdf/EN_1.0_&a=d
- Beunen R, van der Knaap WGM, Biesbroek GR. 2009. Implementation and integration of EU environmental directives. Experiences from the Netherlands. *Environmental Policy and Governance* 19: 57–69. DOI: 10.1002/eet.495
- Bunn SE, Arthington AH. 2002. Basic principles and ecological consequences of altered flow regimes for aquatic biodiversity. *Environmental Management* 30(4): 492-507.
- Burgess G, Burgess H, Kaufman S. 2006. The Challenge of Intractable Conflicts: Introduction to the Colloquium. *Conflict Resolution Quarterly* 24(2): 173-176.
- CIS. 2006. WFD and Hydro-morphological pressures. POLICY PAPER. Focus on hydropower, navigation and flood defence activities. Recommendations for better policy integration. Luxemburg, Office for Official Publications of the European Communities. http://www.sednet.org/download/Policy_paper_WFD_and_Hydro-morphological_pressures.pdf
- Collier U. 1994. Energy and Environment in the European Union, Aldershot: Ashgate.
- CIS. 2009. Key Conclusions. Heavily Modified Water Bodies: "Information Exchange on Designation, Assessment of Ecological Potential, Objective Setting and Measures". Document as prepared for the CIS Workshop, Brussels, 12-13 March 2009. <http://www.ecologic-events.de/hmwb/documents/FinalHMWBConclusions.pdf>
- CIS. 2009. Guidance document No. 24. RIVER BASIN MANAGEMENT IN A CHANGING CLIMATE. Sweden. <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>
- CIS. 2001. Strategic Document: as agreed by the Water Directors under Swedish Presidency. 2 May 2001. <http://ec.europa.eu/environment/water/water-framework/objectives/pdf/strategy.pdf>
- CIS. 2008. Policy paper on Climate Change and Water. Brdo, Slovenia. <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>
- Council of the European Union. 2000. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. *Official Journal of the European Union* 327: 0001–0073.
- Council of the European Union. 2009. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. *Official Journal of the European Union* 140: 0016–0060.
- Dewulf A, Craps M, Bouwen R, Pahl-Wostl C. 2005. Integrated management of natural resources dealing with ambiguous issues, multiple actors and diverging frames. *Water Science and Technology* 52(6):115–124.
- Ecologic Institute, 2005. WFD and Hydromorphology: Workshop summary report. Document prepared for in relation to the CIS Workshop, 17-19 October 2005, in Prague. http://www.ecologic-events.de/hydromorphology/documents/967_summary.pdf
- Ecologic Institute. 2007. WFD & Hydropower, Common Implementation Strategy Workshop. Key Conclusions. http://www.ecologic-events.de/hydropower/documents/key_conclusions.pdf
- Ecologic Institute. 2009. Heavily Modified Water Bodies: Information Exchange on Designation, Assessment of Ecological Potential, Objective Setting and Measures. Ecologic Institute, 23.04.2009. http://www.ecologic-events.de/hmwb/documents/Discussion_Paper_Updated.pdf
- Ecologic Institute. 2011. Water management, Water Framework Directive & Hydropower. Issue Paper. Document prepared for the CIS Workshop in Brussels, 13-14 September 2011. http://www.ecologic-events.eu/hydropower2/documents/IssuePaper_final.pdf
- Eurelectric. 2005. Consistency and Coherence of the EU Directives and Regulations. Working Group Perspective. Ref: 2005-120-0004. Eurelectric: Brussels.

- 1
2
3 Eurelectric. 2011. *Hydro in Europe: Powering Renewables*. Report of the EURELECTRIC Renewables Action Plan
4 (RESAP). Brussels, Belgium. [http://www.eurelectric.org/media/26690/hydro_report_final-2011-160-0011-01-
6 e.pdf](http://www.eurelectric.org/media/26690/hydro_report_final-2011-160-0011-01-
5 e.pdf)
- 6 European Commission (EC). 2009. WHITE PAPER. Adapting to climate change: Towards a European framework for
7 action. COM/2009/147. Brussels. [http://eur-
9 lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0147:FIN:EN:PDF](http://eur-
8 lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0147:FIN:EN:PDF)
- 10 European Commission (EC). 2011. A roadmap for moving to a competitive low carbon economy in 2050. Brussels,
11 Belgium. 8.3.2011. COM (2011) 112. Brussels. [http://eur-
13 lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF](http://eur-
12 lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0112:FIN:EN:PDF)
- 14 European Commission (EC). 2012a. A Blueprint to Safeguard Europe's Water Resources. COM (2012) 0673. Brussels.
15 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52012DC0673:EN:NOT>.
- 16 European Commission (EC). 2012b. Report from the Commission to the European Parliament and the Council on the
17 Implementation of the Water Framework Directive (2000/60/EC): River Basin Management Plans (Text with
18 EEA relevance). COM(2012) 670. Brussels. [http://ec.europa.eu/environment/water/water-framework/pdf/COM-
20 2012-670_EN.pdf](http://ec.europa.eu/environment/water/water-framework/pdf/COM-
19 2012-670_EN.pdf)
- 21 European Commission (EC). 2013. Green Paper: A 2030 framework for climate and energy policies. COM (2013) 0169.
22 Brussels. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52013DC0169:EN:NOT>
- 23 European Court of Justice. 2011. C-297/11.
24 European Court of Justice. 2011. C-366/11.
25 European Court of Justice. 2011. C-403/11.
26 European Court of Justice. 2011. C-223/11.
- 27 European Environmental Agency (EEA). 2010. The European Environment – State and Outlook 2010 – Synthesis. EEA:
28 Copenhagen.
- 29 European Environmental Agency (EEA). 2011. EEA Report on NREAPs, 2011. EEA: Copenhagen.
- 30 European Environmental Bureau (EEB). 2001. Handbook on EU Water Policy under the Water Framework Directive.
31 Brussels, Belgium.
32 http://www.rec.sk/REC_SK_Eng/EEB%20Water%20Handbook%20Absolut%20Final%202001.pdf
- 33 European Environmental Bureau (EEB). 2010. 10 Years of the Water Framework Directive: A Toothless Tiger? - A
34 Snapshot Assessment of EU Environmental Ambitions. Brussels, Belgium.
35 <http://www.eeb.org/?LinkServID=B1E256EB-DBC1-AA1C-DBA46F91C9118E7D&showMeta=0>
- 36 European Renewable Energy Council (EREC). 2010. Re-thinking 2050: A 100% Renewable Energy Vision for the
37 European Union. Brussels, Belgium.
38 http://www.rethinking2050.eu/fileadmin/documents/ReThinking2050_full_version_final.pdf.
- 39 European Small Hydropower Association (ESHA). 2004. Contradictions between the Water Framework Directive and
40 the RES-electricity Directive. Bruxelles, Belgium.
41 [http://www.esha.be/fileadmin/esha_files/documents/publications/position_papers/Contradictions_between_WFD
43 and_RES-e_Directive1.pdf](http://www.esha.be/fileadmin/esha_files/documents/publications/position_papers/Contradictions_between_WFD
42 and_RES-e_Directive1.pdf)
- 44 European Small Hydropower Association (ESHA). 2007. Administrative Barriers for Small Hydropower Development in
45 Europe. Brussels, Belgium.
46 [http://www.esha.be/fileadmin/esha_files/documents/publications/position_papers/ESHA_contribution_to_Admini
48 strative_barriers_workshop_IEEA_.pdf](http://www.esha.be/fileadmin/esha_files/documents/publications/position_papers/ESHA_contribution_to_Admini
47 strative_barriers_workshop_IEEA_.pdf). (accessed 01.11.2012)
- 49 Fletcher R. 2010. When Environmental issues Collide: Climate change and the Shifting political ecology of hydroelectric
50 Power. *Peace and Conflict Review* 5(1): 14-30.
- 51 Gray B. 2004. Strong Opposition: Frame-based Resistance to Collaboration. *Journal of Community & Applied Social
52 Psychology* 14:166-176.
- 53 Henriksen CB, Hussey K, Holm PE. 2011. Exploiting soil-management strategies for climate mitigation in the European
54 Union: maximizing “win-win” solutions across policy regimes. *Ecology and Society* 16(4): 22.
55 <http://dx.doi.org/10.5751/ES-04176-160422>
- 56 Hussey K, Pittock J. 2012. The Energy–Water Nexus: Managing the Links between Energy and Water for a Sustainable
57 Future. *Ecology and Society* 17(1): 31. <http://dx.doi.org/10.5751/ES-04641-170131>
- 58 Jackson ALR. 2011. Renewable energy vs. biodiversity: Policy conflicts and the future of nature conservation. *Global
59 Environmental Change* 21: 1195-1208.
- 60 Jans JH. 2011. Stop the integration principle? *Fordham International Law Journal* 33(5): 1533-1547.
- Jordan AJ, Lenschow A. 2008. Innovation in Environmental Policy? Integrating the Environment for Sustainability.
Edward Elgar : Cheltenham.
- Jordan AJ, Lenschow A. 2010. Environmental policy integration: a state of the art review. *Environmental Policy and
Governance* 20: 147–158. doi: 10.1002/eet.539

- Jordan AJ, Schout JA. 2006. The Coordination of European Governance: Exploring the Capacities for Networked Governance. Oxford University Press: Oxford.
- Kaika M, Page B. 2003. The EU Water Framework Directive. Part 1. European Policy Making and the Changing Topography of Lobbying. *European Environment* 13: 314-327.
- Keskitalo ECH, Pettersson M. 2012. Implementing Multi-level Governance? The Legal Basis and Implementation of the EU Water Framework Directive for Forestry in Sweden. *Environmental Policy and Governance* 22: 90–103. doi: 10.1002/eet.1574
- Lafferty W, Hovden E. 2003. Environmental policy integration: towards an analytical framework. *Environmental Politics* 12: 1-22.
- Lafferty WM (ed.). 2004. Governance for Sustainable Development. The challenge of adapting form to function. Edward Elgar: Cheltenham.
- Lafferty WM, Ruud A (eds). 2008. Promoting Sustainable Electricity in Europe: Challenging the Path Dependency of Dominant Energy Systems. Edward Elgar: Cheltenham.
- Lenschow A. 2000. Environmental policy integration: Greening sectoral policies in Europe. Earthscan: London.
- Lenschow A. 2002a. "Greening" the European Union - are there lessons to be learned for international environmental policy? *Global Environmental Change* 12: 241-245.
- Lenschow A. 2002b. "Greening the European Union: An introduction". In *Environmental policy integration: Greening sectoral policies in Europe*. A. Lenschow. Earthscan: London.
- Lewicki RJ, Gray B, Elliott M. 2002. Making Sense of Intractable Environmental Conflicts: Concepts and Cases. Island Press: Washington DC.
- Liefferink D, Wiering M, Uitenboogaart Y. 2011. The EU Water Framework Directive: A Multi-dimensional analysis of implementation and domestic impact. *Land Use Policy* 28: 712–722.
- McCully P. 1996. Silenced Rivers: the Politics and the Ecology of Large Dams. Zed Books: London.
- Newig J, Pahl-Wostl C, Sigel K. 2005. The Role of Public Participation in Managing Uncertainty in the Implementation of the Water Framework Directive. *European Environment* 15:333–343. <http://onlinelibrary.wiley.com/doi/10.1002/eet.398/pdf>
- Nilsson M, Zamparutti T, Petersen JE, Nykvist B, Rudberg P, McGuinn J. 2012. Understanding Policy Coherence: Analytical Framework and Examples of Sector–Environment Policy Interactions in the EU. *Environmental Policy and Governance* 22: 395–423. doi: 10.1002/eet.1589
- Opperman JJ, Royte J, Banks J, Day LR, Apse C. 2011. The Penobscot River, Maine, USA: a basin-scale approach to balancing power generation and ecosystem restoration. *Ecology and Society* 16(3):7. <http://dx.doi.org/10.5751/ES-04117-160307>
- Persson Å. 2004. Environmental Policy Integration: An Introduction. PINTS Background Paper. Stockholm Environment Institute. Stockholm. <http://www.sei-international.org/mediamanager/documents/Publications/Policy-institutions/EPI.pdf>
- Pittock J. 2011. National climate change policies and sustainable water management: conflicts and synergies. *Ecology and Society* 16(2): 25. <http://www.ecologyandsociety.org/vol16/iss2/art25/>
- Putnam L, Holmer M. 1992. Framing, reframing and issue development. In *Communication and Negotiation*, Putnam L, Rolof M (eds). Sage: London, pp 128-155.
- Rein M, Schon D. 1993. Reframing policy discourse, in *The Argumentative Turn in Policy Analysis and Planning*. Fischer F, Forester J (eds). Duke University Press: Durham, pp 145-166.
- Reinvang R, Steel C, Dønnum BO. 2004. The Water Framework Directive in Norway: An environmental vehicle in need of a jump-start. WWF-Norway, the Norwegian Biodiversity Council (SABIMA) and the Norwegian Association of Hunters and Anglers (NJFF). Oslo, Norway. http://awsassets.wwf.no/downloads/wfd_wwfnorway_report04.pdf
- Rietig K. 2013. Sustainable Climate Policy Integration in the European Union. *Environmental Policy and Governance* 23: 297–310. doi: 10.1002/eet.1616
- Rosenberg DM, Bodaly RA, Usher PJ. 1995. Environmental and social impacts of large scale hydroelectric development: who is listening? *Global Environmental Change* 5 (2) 127–148.
- Schön DA, Rein M. 1994. Frame Reflection: Toward the Resolution of Intractable Policy Controversies. Basic Books, New York.
- Shmueli D. 2008. "Framing in Geographical Analysis of Environmental Conflicts: Theory, Methodology and Three Case Studies," *GeoForum* 39: 2048-2061.
- Shmueli DF, Ben-Gal M. 2003. Stakeholder Frames in the Mapping of the Lower Kishon River Basin Conflict. *Conflict Resolution Quarterly* 21(2).
- Shmueli DF, Elliott M, Kaufman S. 2006. Frame changes and the management of intractable conflicts. *Conflict Resolution Quarterly* 24(2) 207-218.
- Söderberg C, Eckerberg K. 2013. Rising policy conflicts in Europe over bioenergy and forestry. *Forest Policy and Economics* 33: 112–119.

- 1
2
3 van der Heijden J, ten Heuvelhof E. 2012. The Mechanics of Virtue: Lessons on Public Participation from Implementing
4 the Water Framework Directive in the Netherlands. *Environmental Policy and Governance* 22: 177–188.
5 doi: 10.1002/eet.1583
- 6 VGB. 2005. The EU Water Framework Directive and its Possible Effects on Hydropower. VGB Report. Available from:
7 [http://www.vgb.org/vgbmultimedia/hydropower/EU+Water+Framework+Directive_VGB+Position+Paper_NEW.](http://www.vgb.org/vgbmultimedia/hydropower/EU+Water+Framework+Directive_VGB+Position+Paper_NEW.pdf)
8 [pdf](http://www.vgb.org/vgbmultimedia/hydropower/EU+Water+Framework+Directive_VGB+Position+Paper_NEW.pdf)
- 9 Winship C. 2006. Policy Analysis as Puzzle-Solving. In *Oxford Handbook of Public Policy*, Moran M, Goodin RE, Rein
10 M (eds). Oxford Univeristy Press: Oxford.
- 11 WWF, European Environmental Bureau. “Tips and Tricks” for Water Framework Directive Implementation. A resource
12 document for environmental NGOs on the EU guidance for the implementation of the Water Framework
13 Directive. March 2004. Brussels, Belgium.
14 http://www.rivernet.org/general/docs/200403_EEB_WWF_Tips&Tricks.pdf
- 15 WWF, European Environmental Bureau. EU water policy: making the water framework directive work. The quality of
16 national transposition and implementation of the water framework directive at the end of 2004. A second
17 “Snapshot” Report – Assessment of results from an environmental NGO questionnaire by the EEB and WWF.
18 February 2005. www.eeb.org/activities/water/making-WFD-work-February05.pdf
- 19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Stakeholders	Values/ Identity	Aspiration	Concerns/issues	Outcome
Hydropower Industry	Economic frame	<ul style="list-style-type: none"> - Economic viability - Maintenance and increase of the hydropower generation - Stable investment environment 	<ul style="list-style-type: none"> - High costs for restoration/mitigation - Loss of profitability - Loss of generation capacity - Uncertain terrain for investments 	<ul style="list-style-type: none"> - Stable financial environment - Clear and consistent messages
Authorities of Member States	Economic frame Security frame	<ul style="list-style-type: none"> - Achievement of renewable energy policy goals - Achievement of Environmental policy goals - Increased electricity generation - Continued economic viability of HP - Climate change mitigation 	<ul style="list-style-type: none"> - Struggle to comply with RES Directive - Decrease security of supply - High economic costs - High administrative costs - Institutional challenges 	<ul style="list-style-type: none"> - Guidance or indication on how to set priorities and strike the balance - Flexibility in implementation
European commission	Energy Security frame Climate Change and Sustainability frame Ecological and environmental frame	<ul style="list-style-type: none"> - Implementation of the WFD and RES directive - Climate change mitigation and adaptation - Integration of policy goals 	<ul style="list-style-type: none"> - Risk of wakened policy coherence and integration - Delay in the implementation of the directives - Avoid costly litigations among the different parties involved 	<ul style="list-style-type: none"> - Successful implementation of all EU directives - Resolution of conflicts - Avoid litigations and delays
NGOs	Ecological Frame Justice and rights Frame	<ul style="list-style-type: none"> - Protection/preservation and full restoration of the water courses - Good Ecological Status - Effective implementation - Participation and transparency 	<ul style="list-style-type: none"> - Poor Water protection - Abuse in the designation of HMWB - Watering down of WFD ambitions - No proper implementation of the WFD goals 	<ul style="list-style-type: none"> - Good Ecological Status of all waters - Strong enforcement of the WFD

Table 1. Overview of stakeholders values, aspirations and concerns in relation to the WFD implementation and hydropower. Compiled by the authors.

Date	Event / Document	Integration/Balance
2000	Water Framework Directive	Preamble 16: "Further integration of protection and sustainable management of water into other Community policy areas such as energy (...) is necessary".
2001	Strategic document as agreed by the water directors under Swedish presidency (CIS)	<ul style="list-style-type: none"> - Integration of water policy into other Community policies for ensuring sustainability. - Energy as one of the priority areas of action.
2005	(Ecologic) European Workshop on WFD and Hydromorphology. Workshop summary report.	<ul style="list-style-type: none"> - Successful implementation means achieving an appropriate balance between protection and use. (p.6) - Integration as a two way process. (p.7)
2006	(CIS) WFD and Hydro-morphological pressures: Policy Paper. Focus on hydropower, navigation and flood defence activities. Recommendations for better policy integration.	<ul style="list-style-type: none"> - Recognition of the need and the legitimacy of each policy is the pre-requisite for integration. - Enhancement of the dialogue and the co-operation processes between the different competent authorities, stakeholders and NGOs is a priority task in order to take into account all the interests and to achieve a good balance between water uses and protection. (p.29) - The WFD provides Member States with the flexibility to set different objectives for particular water bodies that reflect environmental, social and economic needs and priorities. - Flexibility means that "... the needs and priorities of other policy areas can be taken into account in water management decisions, through the appropriate use of exemption mechanisms, subject to the application of the exemption tests. At the same time, other policies must also take into account environmental objectives in order to increase synergies and reduce antagonisms." (p.19)
2007	(Ecologic) "WFD & Hydropower", Common Implementation Strategy Workshop. Summary report.	<ul style="list-style-type: none"> - The benefits of hydropower as a highly reliable CO2-free and renewable source of electricity production but also the need to maintain the ecological functions of hydropower-affected water stretches have to be taken both into account to achieve a proper and well-balanced approach to meet climate, water & nature protection objectives. (p.16) - Hydropower is a very important source of renewable energy whose importance may increase in the future, in particular considering current discussions on climate change. (p.3)
2009	(CIS) Workshop on Water Framework Directive and Heavily Modified Water Bodies	Designation of HMWB, identifying GEP and setting objectives is about striking the right balance. (p.3)
2011	(Ecologic) Water management, Water Framework Directive & Hydropower	<ul style="list-style-type: none"> - Successful implementation of all Directives requires properly integrating energy and water policy. (p.56) - The river basin management planning process provides an opportunity to integrate strategic planning for hydropower development with water environment objectives. (p.58) - Designation of HMWB, identifying GEP and setting objectives is about striking the right balance. (p.73) - Recognition of the "issue of balancing the requirements of the WFD and the Renewable Energy Directive
2011	(Arcadis) Hydropower generation in the context of the WFD	<ul style="list-style-type: none"> - No judgment is available on the right balance between the benefits of the hydropower facility and the benefits of protecting the aquatic environment
2012	(EC) EU Water Blueprint	<ul style="list-style-type: none"> - There is a need for better implementation and increased integration of water policy objectives into other policy areas, such as (...) the policies on renewable energy, transport etc. - Member States should make full use of RBMPs that require an integrated approach to managing water resources across policy areas such as agriculture, aquaculture, energy, transport and integrated disaster management. (p. 6)

Table 2. Timeline of key events/documents and the integration goal. Compiled by the authors.