Rechtsanwälte Günther
Partnerschaft

Rechtsanwälte Günther • Postfach 130473 • 20104 Hamburg

European Commission
DG FISMA
(Directorate-General for Financial Stability, Financial Services and Capital Markets Union)
1049 Bruxelles/Brussels
Belgium
Via E-Mail: ENV-INTERNAL-REVIEW@ec.europa.eu

Michael Günther *
Hans-Gerd Heidel * (bis 30.06.2020)
Dr. Ulrich Wollenteit * [1]
Martin Hack LL.M. (Stockholm) * [1]
Clara Goldmann LL.M. (Sydney) *
Dr. Michéle John *
Dr. Dirk Legler LL.M. (Cape Town) *
Dr. Roda Verheyen LL.M. (London) *
Dr. Davina Bruhn *
André Horenburg
John Peters

[1] Fachanwalt für Verwaltungsrecht
* Partner der Partnerschaft
AG Hamburg PR 582

Mittelweg 150
20148 Hamburg
Tel.: 040-278494-0
Fax: 040-278494-99
www.rae-guenther.de

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Mitarbeiterin: Jule Drzewiecki
Durchwahl: 040-278494-11
Email: drzewiecki@rae-guenther.de

REQUEST FOR INTERNAL REVIEW
Re. Commission Delegated Regulation (Taxonomy) (EU) 2022/1214 of 9 March 2022, OJ L 188, 15.07.2022, 1 et seq. under Arts. 10, 11 of Regulation 1367/2006 (Aarhus Regulation)

submitted by **Greenpeace e. V.**
Honkongstraße 10
20450 Hamburg
Germany

as well as seven other **Greenpeace** organisations:

Greenpeace EU, Greenpeace France, Greenpeace Italy, Greenpeace Luxemburg, Greenpeace Belgium, Greenpeace Spain, Greenpeace Austria

Person empowered to represent the applicants (Art. 1(4) COM Dec. 2008/50/EC)

Dr. Roda Verheyen
attorney-at-law
John Peters
attorney-at-law

Rechtsanwälte Günther
Mittelweg 150
20148 Hamburg
Germany

Contact email: verheyen@rae-guenther.de

Dear Mr. Berrigan,

in my capacity as legal counsel empowered to represent the eight non-governmental organisations listed above (in the following: Greenpeace) I hereby formally file a request for internal review (RIR) under Art. 10(1), 11 Aarhus regulation (AR).[1]

The powers of attorney are attached in **Annex 1**.

Subject of this RIR is the

> Commission Delegated Regulation (EU) 2022/1214 of 9 March 2022 amending Delegated Regulation (EU) 2021/2139 as regards economic activities in certain energy sectors and Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities [2],

hereafter also referred as: **SCDR,** which supplements and/or effectively amends the Taxonomy Regulation.[3]

The SCDR adds technical screening criteria (TNC) to the first Taxonomy Climate Delegated Act[4] and is based on the legislative delegations set out in Articles 8(4), 10(3) and 11(3) of the Taxonomy Regulation. The SCDR has been adopted by the Commission on 9th of March 2022, and was published in the Official Journal on 15th July 2022.

By adding the economic activities in the nuclear energy and natural gas sectors to the list of technical screening criteria and thereby qualifying them as "sustainable" for the purpose of the Taxonomy Regulation, the Commission infringes primary and secondary EU environmental law. In particular, the delegated act is not formally and substantively covered by the stipulations in the Taxonomy Regulation.

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[1] *Aarhus regulation* or *AR* in this RIR refers to Regulation (EC) No 1367/2006 of the European Parliament and of the Council of 6 September 2006 as amended by Regulation (EU) 2021/1767 of the European Parliament and of the Council of 6 October 2021.

[2] Commission delegated regulation 2022/1214 amending Delegated Regulation (EU) 2021/2139 as regards economic activities in certain energy sectors and Delegated Regulation (EU) 2021/2178 as regards specific public disclosures for those economic activities, OJ L 188, 15.7.2022, p. 1–45.

[3] *Taxonomy Regulation* or *TR* is referring to Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088.

[4] *Taxonomy Climate Delegated Act* is referring to the Commission Delegated Regulation (EU) 2021/2139 of 4.6.2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council, Brussels, 4.6.2021, C(2021) 2800 final.

It is thus suggested that the *Second Commission Delegated Regulation (EU) 2022/1214* of 9 March 2022 as published on 15th July 2022 is being

revoked.

in its entirety.

The grounds for and substantiation of this RIR is structured as follows:

Contents

A. The facts and legal background

The Taxonomy Regulation is a cornerstone of the European Green Deal[5] to ensure that investment is channelled in the direction of climate and environmentally friendly projects and technologies to ensure the EU's environmental objectives are met, in particular achieving a climate-neutral Union by 2050 within a pathway consistent with the Paris Agreement.

It sets the legal framework for establishing a unified classification system for „environmentally sustainable" economic activities. As stated in its recitals 11 and 12, its objective is also to enhance investor confidence and awareness of the environmental impact of financial products; by creating greater visibility for such products; and by addressing "greenwashing", whereby market actors can gain an unfair competitive advantage through false claims of environmental sustainability.

The Taxonomy Regulation defines six environmental objectives in Art. 9 and sets out requirements in several layers that must be fulfilled for an activity to be labelled „environmentally sustainable". Naturally, this definition is key in order to achieve the aims of the Taxonomy and thus of the Green Deal. Therefore, in order to ensure the consistency of further law making (delegated to the EU Commission) with this definition and its underlying goals, the requirement for an activity to "do no significant harm" ('DNSH') to any of the Environmental Objectives defined in Art. 9 was included in Art 17. Art. 20 establishes the "Platform on Sustainable Finance" (Platform) which shall, inter alia, advise the Commission on technical screening criteria.

This RIR is concerned with the way in which the Commission has used the powers conferred to it to establish (in delegated acts) detailed technical screening criteria ('TSC') for specific economic activities to be deemed sustainable.

The Commission suggested a first delegated act on sustainable activities for climate change mitigation and adaptation objectives of the EU Taxonomy ("First Climate Delegated Regulation" (EU) 2021/2178 "FCDR") which is applicable since January 2022. This Regulation is amended and changed by the Second Climate Delegated Regulation 2022/1214, **SCDR**, which is the object of this RIR.

The SCDR also amends Delegated Regulation (EU) 2021/2139,[6] an instrument regarding corporate disclosure. This RIR focuses on the compatibility of the

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[5] Communication from the EU Commission: The European Green Deal, COM/2019/640 final.

[6] Commission Delegated Regulation (EU) 2021/2178 of 6 July 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by specifying the content and presentation of information to be disclosed by undertakings subject to Articles 19a or 29a of Directive 2013/34/EU concerning environmentally sustainable economic activities, and specifying the methodology to comply with that disclosure obligation (OJ L 443, 10.12.2021, p. 9).

SCDR with the Taxonomy Regulation and primary law. Revoking the SCDR would, however, also affect Delegated Regulation (EU) 2021/2139.

The amended delegated act is essentially a checklist for private investors. The criteria set out in the Annexes are binding to ensure investments receive the green Taxonomy label. The SCDR has three Annexes. Annex I is the Annex concerning climate change mitigation. It contains sections 4.26 to 4.28 on various nuclear generation activities, including by both new and existing energy plants. For each activity, eligibility requirements are set out in various degrees of detail, including on "additional requirements pertaining to the DNSH rule" of Art. 17 Taxonomy regulation. Annex I also contains in section 4.29- 4.30 activities concerning fossil gas. Annex II is the Annex concerning adaptation to climate change and again includes nuclear activities (section 4.26-4.28) and fossil gas (section 4.29-4.31). Annex III contains a reporting format (Art 8 Taxonomy Regulation).

This RIR will show: Fossil gas and nuclear installations are not environmentally sustainable. By defining them as such in the SCDR, the Commission has infringed EU law, in particular the Taxonomy Regulation itself. Including fossil gas and nuclear in the EU Taxonomy renders the entire Taxonomy Regulation meaningless and devoid of purpose. Unless the SCDR is revoked, financial markets will not know what investments are actually effectively "greening" their portfolios. The weighted cost of capital (WACC) for truly sustainable activities will not decrease.

B. Legal Grounds and Reasoning

I. Admissibility

1. Entitlement of Greenpeace Germany to request internal review

Greenpeace e.V. (*e.V.=eingetragener Verein*, registered charity) as the German branch of Greenpeace is entitled to request internal review according to Art. 11(1) Aarhus Regulation, Art. 3 COM Dec. 2008/50/EC. Art. 4(2) COM Dec. 2008/401/EC /Euratom.

This RIR is taken on behalf of eight Greenpeace offices. Admissibility is shown in this section (1) in detail with regard to Greenpeace Germany (Greenpeace e.V.), and the necessary documentation for the other seven independent Greenpeace entities is referred below under paragraph 2 and attached in Annexes, in order to streamline this document.

Greenpeace[7] is an international campaigning organisation, non-partisan, non-governmental and completely independent of politics and business. With non-

[7] Greenpeace International is the holder of all rights concerning with name „Greenpeace". It is not a Party to this RIR. Greenpeace International is registered under Dutch law as Stichting Greenpeace Council.

violent actions, publications of all kinds, legal actions, and educational activities, Greenpeace campaigns for the protection of the foundations of life including the global climate system. Greenpeace has three million supporters and offices in over 40 countries. Greenpeace has had a major campaign focus on climate change for years, has been active in anti-nuclear protests since its establishment and is engaged in a sustainable finance campaign with several offices, including Greenpeace Germany.

Greenpeace Germany (Greenpeace e.V.) was established in 1980. It has more than 630,000 supporting members in Germany that donate to Greenpeace and - together with about 300 staff members - ensure the daily work to protect the environment, international understanding and peace.

The organization meets the criteria of Art. 11(1) Aarhus Regulation, also referred to in Art. 3 COM Dec. 2008/50/EC. It is an **independent non-profit-making legal person** in accordance with German national law or practice (see, below, point a)). Its primary **objective is promoting environmental protection** in the context of environmental law (b). It has existed for **more than two years** and is **actively** pursuing the aforementioned objective (c). The **subject matter** in respect of which the request for internal review is made is **covered** by its objective and activities (d).

a) Independence and non-profit
Greenpeace e.V. is an independent non-profit-making legal person in accordance with German law. Its sole source of finances are donations. Donations from governments, the EU, businesses or political parties are not accepted. Greenpeace e.V. acts only by the mandate of its Articles of Association ("Greenpeace-Satzung"). The Articles of Association are attached in German and an English translation in

Annex 2.

Greenpeace e.V. is registered in the Register of Associations at the Hamburg District Court under the VR number 9774.

Annex 3 (English translation).

According to § 2(3) Greenpeace-Satzung the organization exclusively acts for non-profit purposes: it is solely altruistically active and it does not primarily pursue its own economic purposes. As stated in § 2(1) Greenpeace-Satzung, all economic activities are subordinated to the idealistic purposes of the association which are specified there (see also below [b]).

Greenpeace e. V. is an acknowledged public-benefit association /charity under German law. German tax authorities afford this acknowledgement after a

thorough examination of the organisation's Articles of Association and their actual implementation.[8] This status is re-examined every three years. It is issued as a part of the tax assessment and renders the organisation tax privileged after Sec. 59 German Fiscal Code[9] ("Abgabenordnung", GFC). Eligible activities are set out in Sec. 52 GFC. In the case of Greenpeace e. V., especially Sec. 52 (2) No. 8 GFC is applicable.

Greenpeace e.V. is free from financial influence by state associated or profit making organizations. It is also idealistically independent. Both is acknowledged by German tax authorities. No separate "public benefit"-confirmation is issued. Should the Commission deem it necessary, the relevant passage of the most recent tax assessment can be submitted.

Greenpeace e.V. operates in the form of a private law non-profit Association and this is recognised as a legal person under German law . Only Associations like those get an entry in the Association register and are allowed to bear the abbreviation "e.V." ("eingetragener Verein" – registered association).

b) Primary stated objective

A primary stated objective of Greenpeace is promoting the environmental protection in the context of environmental law, as required by Art. 11(1) (b) Aarhus Regulation.

Pursuant to its Articles of Association, the purpose of Greenpeace is

> *"(...) to promote environmental protection and animal welfare as well as peace and international understanding. As an internationally active ecological organisation, Greenpeace raises awareness of environmental problems, especially global ones, and thus aims to prevent the impairment or destruction of the natural foundations of human, animal and plant life. Greenpeace represents the interests of consumers with regards to environmental protection. (...)."*
>
> **Sec. 2(1) Greenpeace-Satzung, Annex 1 (translated)**

Greenpeace has been pursuing its aim to protect the environment continually with the help of the law. Not only makes it frequent use of access to information laws of both Germany and the EU. It actively seeks to improve inforcement of environmental law.

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[8] see Scientific Service of the German Parliament, p. 4, https://www.bundestag.de/resource/blob/563336/ac2d13e5c2f4473b530f6ac5475959a3/WD-4-090-18-pdf-data.pdf (9/8/22).

[9] https://www.gesetze-im-internet.de/englisch_ao/, Translation by the Ministry of Finances of Germany.

In the field of climate change and nuclear it has published numerous legal opinions and is continually seeking to improve the law to protect the global climate and the environment. An example in the field of green finance is the legal opinion on the need to include climate mitigation as a criterion in the policies of the EU Central Bank (June 2021)

https://www.greenpeace.de/publikationen/2021-6-09_gutachten_ezb_final.pdf

which was eventually reflected in the ECB's revision of it policies. Greenpeace was one of the first organisations to point to the legal obligations of the ECB to mitigate climate change in conducting its monetary policies based on EU primary law.

The current debate on nuclear phase out and the energy crisis has been enfused by Greenpeace Germany recently by a legal opinion on safety requirements and the legality of longer production periods

https://www.greenpeace.de/publikationen/20220729-greenpeace-stellungnahme-guenther-akw-laufzeitverlaengerung.pdf

Greenpeace has participated in and supported numerous lawsuits against the German Government and private entities. Some examples for Greenpeace participation in nuclear and climate lawsuits:

- Greenpeace was actively sought out as stakeholder by the Federal Constitutional Court in the legal procedure involving the nuclear phase out decision and amendment to the Nuclear Law (Atomgesetz), submitted several opinions and was mentioned in the final judgement rendered by the Court[10]
- Greenpeace won a legal procedure in last instance at the Bundesverwaltungsgericht (Federal Administrative Court) to ensure that recipients of EU CAP payments are made transparent in line with EU environmental and access to information law[11]
- Greenpeace was one of the civil society associations that supported the complaint to the federal constitutional court on the national climate law, which led to the much-recognised Neubauer decision on 24 March

[10] Judgement of 6th December 2016, BVerfG - 1 BvR 2821/11 -, Rn. 1-407, ECLI:DE:BVerfG:2016:rs20161206.1bvr282111 (para. 154)

[11] Judgement of 28.05.2009 - BVerwG 7 C 18.08 ECLI:DE:BVerwG:2009:280509U7C18.08.0

2021.[12] As an association, Greenpeace had already led the pleadings against the German Government for not meeting its climate target for 2020.[13]

- Greenpeace is currently taking Volkswagen, the second largest seller of cars in the world, to court, with the goal to make the company observe a sound CO_2 budget.[14]

c) Actively pursuing the objective describe above for over 2 years
Greenpeace operates for more than two years in the field of environmental protection in the context of environmental law, Art. 11(1) (c) Aarhus Regulation. As already stated above, it has been founded in 1980.

Greenpeace's annual reports are publicly available at:

https://www.greenpeace.de/publikationen/jahresbericht-2021
https://www.greenpeace.de/publikationen/jahresbericht-2020
https://www.greenpeace.de/publikationen/jahresbericht-2019

The annual report 2021 is attached in an English deepl-Translation as

Annex 4

The other annual reports can be translated if necessary.

d) Subject matter is part of Greenpeace's objective and activities
Finally, the criterion in Art. 11(1) (d) Aarhus regulation is met. The subject matter of this RIR is covered by the objectives and activities of Greenpeace e.V. This has already been demonstrated by the legal activities documented above.

Together with other Greenpeace offices it has also campaigned actively for a truly green Taxonomy. On 31.December 2021 Greenpeace Germany organised a non violent activity and projected this image on a nuclear power plant in Germany to raise awareness for the upcoming decision of the Commission (the letters read: "For a nuclear free Europe").

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[12] Order of 24th March 2021, BVerfG 1 BvR 2656/18 ECLI:DE:BVerfG:2021:rs20210324.1bvr265618

[13] Verwaltungsgericht Berlin, Judgement of 31.10.2019 - 10 K 412.18.

[14] The procedure is ongoing at District Court of Detmold and Braunschweig. See for all materials and resources: https://www.greenpeace.de/klimaschutz/mobilitaet/vw-klage-gericht (9/8/22)

In January 2022, Greenpeace Germany led a German coalition of civil society organisation in an call to the German Government to exclude nuclear from the Taxonomy Delegated Act[15] and organised non-violent protests in front of the permanent representation of the EU in Berlin ("No greenwashing of nuclear and gas"):

On 2nd February 2022, Greenpeace Germany - together with many other Greenpeace offices published a press release on the presentation of the draft

15 "Anti-Atomkraft-Appell an die Regierung, https://www.greenpeace.de/klimaschutz/energiewende/atomausstieg/anti-atomkraft-appell-bundesregierung (9/8/22)

Delegated act, with its CEO commenting that the Delegated Act means an end to real green finance.

On 6th July 2022, after the vote in the EU Parliament, it posted an article online „Greenwashing durch EU-Nachhaltigkeitstaxonomie“ and declared that it would fight against this inclusion with legal means if necessary. It also published several videos to inform the public.[16]

Greenpeace continually works on climate targets, and thus fossil gas, as well as on nuclear technologies. It has been one of the first NGOs in the world to throw light on the risks of nuclear energy and to promote alternatives. The engagement in nuclear and energy issues are documented in the annual report inter alia on pp. 10, 14, 18.

Through Greenpeace EU, Greenpeace e.V. also continually participates in EU law making and stakeholder consultations. Greenpeace e.V. has not to date taken a RIR itself.

2. Admissibility of the other Greenpeace organisations

The admissibility of Greenpeace **EU Unit** is set out in **Annex 5** entitled „Evidence that Greenpeace European Unit meets the criteria set out in Article 11(1) of Regulation (EC) No 1367/2006“ It contains the statutes and proof of registry as a charitable organisation (non-profit) as well as written evidence of the areas and length of activity.

The same is true for the other Annexes regarding the other Greenpeace entities presented herewith:

The admissibility of **Greenpeace France** is set out in **Annex 6**

The admissibility of **Greenpeace Italy** is set out in **Annex 7**

The admissibility of **Greenpeace Luxembourg** is set out in **Annex 8**

The admissibility of **Greenpeace Belgium** is set out in **Annex 9**

The admissibility of **Greenpeace Spain** is set out in **Annex 10**

The admissibility of **Greenpeace Austria** is set out in **Annex 11.**

3. Formal criteria according to Art. 10 and 2(1) (g) Aarhus regulation

[16] https://option.news/greenwashing-die-eu-nachhaltigkeitstaxonomie-greenpeace-deutschland/ (9/8/22)

The formal requirements in accordance with COM Dec. 2008/401/EC are met:

a) Timely submission
Art. 10(1) subpara 2 Aarhus Regulation stipulates that a formal request can be filed within eight weeks of publication, adoption or notification, whichever comes last. The publication was on 15th July, thus the deadline is met.

b) Grounds and reasons are set out
This RIR states many different legal grounds on which the request is made in Section III, seperating nuclar activties and fossil gas and provides relevant information and documentation supporting those grounds, Article 1(2) and (3) of Decision 2008/50/EC. Section III. also draws on expert reports on gas and nuclear (respectively) that are submitted as Annexes to this RIR.

4. Admissible subject matter

The SCDR (Regulation (EU) 2022/1214) meets the criteria for an admissible administrative act under Art 10(1), 2(1)(g) Aarhus Regulation.

Administrative act is defined in Art. 2(1)(g) Aarhus Regulation as any non-legislative act (below **a**) adopted by a Union institution or body (**b**), which has legal and external effects (**c**) and contains provisions that may contravene environmental law within the meaning of para. (f) of Article 2(1) (**d**).

In detail:

a) Non-legislative act
Article 289 (3) Treaty on the Functioning of the European Union (TFEU) determines which acts of the EU institutions and bodies qualify as legislative acts: the act must have been adopted in accordance with the legislative procedure of Art. 294 TFEU. A delegated act is not part of this legislative procedure. Moreover, given recital (8) of Regulation 2021/1767 amending Regulation 1367/2006/EC the legislator intended to broaden the scope of admissible subject matters for a RIR. The intent of the newly amended Aarhus Regulation therefore strongly argues in favour of the SCDR being a non-legislative act.

The SCDR itself claims to be a “delegated regulation” in its title as required by the general legal basis for Delegated Acts in Art. 290(3). The SCDR describes its legal basis as Arts. 8(4), 10(3) and 11(3) of the Taxonomy Regulation (preamble of the SCDR), which explicitly require “a delegated act”.

The SCDR is therefore a non-legislative act. This has been confirmed for the FCDR by the Commission.[17]

b) Adopted by a Union institution or body
The Commission is an institution of the Union, as per Art. 13 EU Treaty (TEU).

c) Legal and external effect
In accordance with the coherence objective of the Aarhus Regulation with CJEU case law on actions for annulment in Art. 263(4) TFEU (cf. recitals (11) and (12)), this criterion can be equated with the "legal effects vis-à-vis third parties" under Art. 263(1) TFEU.

In the light of relevant judgements of the ECJ, external effect within the meaning of Art. 263 TFEU exists if the legal act is intended to produce legal effects for a legal entity outside the EU administration and not only internally.[18] Recommendations, preparatory acts and opinions are not considered to have external effects.[19] Whether or not an act of the EU institutions produces legal effects must be answered by interpreting the act, regardless of its official designation.[20]

The SCDR is a regulation in the sense of Art. 288 TFEU, therefore binding in its entirety and directly applicable in all Member States. This is what the SCDR considers for itself expressis verbis in its last sentence.

The provisions set out in the SCDR thus directly modify the EU-wide meaning of “environmentally sustainable” (Art. 3 para (d) Taxonomy Regulation) in the context of investments. This is binding on Member States as well as private persons (as specified is Art. 1 para. 2 of the Taxonomy Regulation).

The SCDR also modifies disclosure requirements e.g. for non-financial companies: the technical screening criteria within the meaning of Art. 8(4) Taxonomy Regulation are additional requirements directly applicable to individual legal persons and are to be respected in the same way as the other provisions set out in the Taxonomy *regulation*. Art. 8 Taxonomy Regulation also includes the central term of “environmental sustainability”.

The SCDR therefore aims at legal entities not only within the EU administration and directly creates legal consequences. It has legal and external effect within the

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[17] List of requests No. 64. Request for the internal review by ClientEarth AISBL, Reply 6th July 2022, Annex p 10. (https://ec.europa.eu/environment/aarhus/requests.htm).

[18] Streinz/Ehricke, 3rd ed. 2018, TFEU Art. 263 para. 24; Rec. (11), (12) Aarhus Regulation 2021/1767/EU.

[19] Rec. (11), (12) Regulation 2021/1767/EU

[20] Calliess/Ruffert/Wolfram Cremer, 6th ed. 2022, TFEU Art. 263 marginal no. 13.

meaning of Article 263 TFEU as well as Article 2(1)(g) of the Aarhus Regulation.

This has been confirmed for the FCDR by the Commission.[21]

d) General Scope
In contrast to the requirement of the Aarhus Regulation before the amendment in 2021, the contested act can now be of "general scope". Recital (8) of Regulation 2021/1767/EU states that it is "necessary to broaden the scope of the internal review procedure laid down in that Regulation to include non-legislative acts of general scope". The SCDR does not address individual member states, companies or persons but abstractly modifies and implements details of the general and abstract system of the EU taxonomy. It is therefore justiciable under the revised Aarhus regulation.

e) Provisions that may violate environmental law
According to Art. 2(1)(f) Aarhus Regulation, 'environmental law' means Community legislation which, irrespectively of its legal basis, contributes to the pursuit of the objectives of Community policy on the environment as set out in the Treaty: preserving, protecting and improving the quality of the environment, protecting human health, the prudent and rational utilisation of natural resources, and promoting measures at international level to deal with regional or worldwide environmental problems.

The decisive factor is whether a legal act *factually* violates EU environmental law within the meaning of, but not limited to, Art. 191 TFEU.[22] The EU General Court has held that this concept "must be interpreted, in principle, very broadly"[23] and can thus logically be the case if a legal act is based on environmental competences but does not fulfil the provisions of higher ranking environmental law or a legal act based on other provisions is contravening any EU environmental law.

Both is the case here, as is shown in detail in Section III (Merits). A short overview is provided here.

First, the Taxonomy Regulation itself is part of EU environmental law within the meaning of Article 2(1)(f) Aarhus Regulation. The requirements of the Taxonomy Regulation for delegated acts are not met by the SCDR. This is a direct infringement of EU environmental law: While the Taxonomy Regulation is formally based only on the internal market competence (Article 114 TFEU

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[21] List of requests No. 64. Request for the internal review by ClientEarth AISBL, Reply 6th July 2022, Annex p 10. (https://ec.europa.eu/environment/aarhus/requests.htm).

[22] Rec. (9), (10) Regulation 2021/1767/EU.

[23] Case T-33/16 TestBioTech v Commission, EU:T:2018:135, para. 44-46.

(preamble, line 2), this cannot conceal the regulatory content of the Taxonomy Regulation and purpose which is set in the objectives of Article 191 TFEU.

In accordance with Article 1(1), the Taxonomy Regulation is intended to establish "criteria for determining whether an economic activity qualifies as environmentally sustainable for the purposes of establishing the degree to which an investment is environmentally sustainable". The objective of preserving, protecting and improving the quality of the environment is therefore the core objective of the Regulation. The capital flow redirections and disclosure requirements relevant here expressis verbis intended to combat climate change and mitigate climate change impacts (recital [7] Taxonomy Regulation). The whole regulatory concept of the Taxonomy Regulation hinges on the term "environmentally sustainable" in Art. 1.

Secondly, the SCDR infringes other EU environmental law, such as the EU Climate Law, (undoubtedly environmental law) as will be shown in Section III in detail with respect to climate mitigation objectives.

Thirdly, the SCDR violates EU primary (environmental) law broadly as it will be shown below under III.3, where selected issues are contradicting Article 191(1) TFEU, which includes the principle of "prevention of deterioration", which effectively leads to an obligatory risk-reduction through legislation. Fossil gas and Nuclear energy are indoubtly risk-increasing in certain regards.

f) Scrutiny includes all objective law

After a possible violation of EU environmental law is demonstrated as above, the Commission has to review the SCDR broadly, taking into account all fields of EU law. If an administrative act is based on or may infringe EU environmental law and is being admissible for Internal Review, the subject matter has to be reviewed in the light of all objective EU law, not just limited to environmental law.

On the one hand-side, this follows from the only scrutiny requirement, which is set out in Art. 10(2) sentence 1 Aarhus Regulation: the Commission has to consider all requests unless they are manifestly unfounded or clearly unsubstantiated. This is not limited to a violation of subjective rights or to environmental law,[24] This is confirmed by Recital (9) of Regulation (EU) 2021/1767 that follows the criticism of the Aarhus Convention Compliance Committee (ACCC) on a too narrow scope of the legal assessment, that was restricted to "acts adopted under environmental law". The Aarhus regulation was changed in the following to the wording "contravene environmental law" (Art. 2(1)(g) and (h) Aarhus Regulation.

[24] see, Schlacke/Römling, Aarhus-Handbuch, p. 543 No. 231.

The broad review of the contested act in light of the parent act is also a mandatory review requirement following from EU case law, which obliges the Commission (and the Court) to consider whether the delegated act is within the legal frame set by the parent act.[25]

This standard underpins that the RIR or rather the SCDR is to be assessed holistically and is - in effect - not restricted by possible infringements of particular provisions of environmental law. The applicants understand the Commission's reply to the RIR regarding the FCDR[26] as not disputing this assessment, while differences of opinion regarding the meaning of "conclusive scientific evidence" may remain.

g) Recent RIR regarding the FCDR

The first Climate delegated act was contested by several non-governmental organisations. The Commission considered the first Climate Delegated Regulation in these RIR's as an admissible subject of matter.[27] The SCDR claims to amend the first Climate Delegated Regulation especially by amending the Annexes I and II, effectively becoming one Annex (Art. 1 SCDR). All requirements of eligibility thus must be determined at least as favourably as in the case of the FCDR.

5. Interim Result

The contestants comply with the admissibility provisions of the Aarhus regulation, in particular Art. 10 and 11. The request itself is timely submitted and states the grounds of review, which base the request. The subject matter is eligible for review under the AR to the extent of the contestant's RIR.

II. Standard of review / standard of evidence

The EU Courts have developed different standards of review depending on the subject matter and the contestant. The standard of review (factual and legal perspective) is extensive and in-depth. This applies to both Commission and the Courts: they have to consider the subject matter in the light of formal and material objective law, not limited to environmental law (see above) and not limited to a mere control of manifest error of judgement. In this particular case, any technical criterion must also be assessed on the basis of "conclusive scientific evidence and the precautionary principle" as mandated by Art 19 (1) f Taxonomy Regulation, as well as the structural and expert group requirements set out in the Taxonomy Regulation.

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[25] CJEU, Case C-44/16 P, ECLI:EU:C:2017:357, para. 53 (Dyson) and CJEU Case C-696/15 PECLI:EU:C:2017:595, para. 48 et seq.

[26] List of requests No. 64. Request for the internal review by ClientEarth AISBL, Reply 6th July 2022, Annex p 20 et seq. (https://ec.europa.eu/environment/aarhus/requests.htm).

[27] see e.g. Client Earth's RIR and the reply plus Annex, Fn. above.

In the past, the Commission and the EU courts have followed a restrictive approach when reviewing cases under the Aarhus Regulation. The applicants contend that such restrictions no longer apply after the revision of the Aarhus Regulation. However, this is a matter for the judicial stage should the Commission not accept our RIR..

As a general principle however, the intensity with which EU Courts will examine the legality of a Commission decision or delegated acts can be described as full review and marginal review.[28] The reasons set out in this RIR fall mostly in the former category. For the most part, the SCDR is simply not compliant with a superior norm of law, as it appears when examining the facts and the Taxonomy Regulation as parent act closely.

Even where discretion or a margin of appreciation exists, the grounds set out in this RIR meet the standard of the established case law on **marginal review** according to which EU Courts will limit themselves to examining whether

> (a) the relevant **procedural rules** have been complied with
> (b) the **facts** admitted by the Commission have been **accurately stated** and/or
> (c) there has been a **manifest error of appraisal** or a **misuse of powers**[29]

On (a) The CJEU has laid down various procedural requirements to be observed by the EU institutions. In detail, these are the necessity of the representation of scientific expertise, the hearing of the parties concerned and a sufficient statement of reasons within the meaning of Art. 296 TFEU.[30]

In the TU München case, the court stated that these procedural guarantees include in particular, "the duty of the competent institution to examine carefully and impartially all the relevant aspects of the individual case, the right of the person concerned to make his views known and to have an adequately reasoned decision."[31]

Generally, a high standard of complying with procedural rules has to be applied, as this compensates for possible restrictive scrutiny in the material legal assessment. Irrespectively of this, the limit is exceeded, if it can be proven that

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[28] What's in a name? The marginal standard of review of "complex economic evaluations" in EU competition enforcement, Kalintiri, Common Market Law Review, Volume 53, Issue 5 (2016), pp. 1283-1316.

[29] Case C-42/84, Remia v. Commission, EU:C:1985:327, para 34; Case T-201/04, Microsoft v. Commission, EU:T:2007: 289, paras. 87-89, Cases C-326/05 P Industrias Químicas del Val-lés v Commission, EU:C:2007:443, para 76.

[30] Grabitz/Hilf/Nettesheim/Tietje, 75. EL January 2022, TFEU Art. 114, para.148.

[31] Case C-269/90, Hauptzollamt München Mitte v. Technische Universität München, EU:C:1991:438, p. 5499.

the contested decision could have had a different content without the procedural violation.[32]

Complying with (b) requires the EU Court not only to examine the factual correctness of the evidence adduced, its reliability and its coherence, but also to control whether this evidence represents all relevant data that had to be used in the assessment of a complex situation and whether it is capable of supporting the conclusions drawn from it.[33]

In *General Electric* the GC emphasized that "as to the nature of the Community judicature's power of review, it is necessary to draw attention to **the essential difference between factual matters and findings,** on the one hand, which may be found to be inaccurate by the Court in the light of the arguments and evidence before it, and, on the other hand, appraisals of an economic nature".[34]

In *KME*, the court stressed that, "not only must those Courts establish, among other things, whether the evidence relied on is factually accurate, reliable and consistent but also whether that evidence contains all the information which must be taken into account in order to assess a complex situation and **whether it is capable of substantiating the conclusions drawn from it**."[35]

In the following section we will refer back to this standard and set out under each heading

whether objective, non-discretionary law is infringed. This is the case for much of the facts regarding nuclear generation and fossil gas, as will be set out in detail below or

whether, taking into account the **increased standard set out by** the Taxonomy Regulation (*conclusive scientific evidence* and the *precautionary principle* (**Article 19(1), para. (g**). the Commission has **exceeded any discretion** it might have had. Aware of the fact that the Commission does not agree with this (new) standard[36], the applicants contend that discretion is very limited in general under the Taxonomy Regulation. If the benchmark is to only include *conclusive* evidence, there is no room for a general Commission assessment and decision on the basis of non-conclusive evidence.

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[32] Judgment of the Court of 29 October 1980, 218/78 et al., ECLI:EU:C:1980:248, para 47.

[33] Groeben, von der/Schwarze/Jean-Christophe Puffer-Mariette, 7th ed. 2015, Regulation (EC) 1/2003 Art. 1, para. 27

[34] Case T-210/01 General Electric Company v Commission, EU:T:2005:456, para 62.

[35] Case C-389/10 P, KME vs. Commission, EU:C:2011:816, para 121.

[36] See response by the Commission on FCDR, Fn. 17.

III. Merits

The delegated act in question, the SCDR, will be legally assessed against its legal basis in the Taxonomy Regulation and other secondary EU law (see below **1**]).

An assessment of the SCDR in the light of EU primary law will be conducted under 2).

1. Requirements of the Taxonomy Regulation

This section is by far the longest and most complicated of this RIR. Due to the regulatory system set up by the Taxonomy Regulation the applicants must address **positively** whether the nuclear and gas activities are eligible under Art 10 and 11 Taxonomy regulation („Substantial Contribution to Climate Change“ and “Adaptation”) at all and then again **negatively** whether in doing so it can be ruled out that significant harm to (the other) environmental goals results from such activities (Art 17). Since Art 10 and 11 Taxonomy Regulation foresee several possible layers of eligibility criteria under which the new Annexes could be regulated, and none apply in the opinion of the applicants, we must address each of them in turn.

In both instances, positive and negative reasoning, the standard of Art 19 (conclusive scientific evidence) must legally be applied when establishing TSC, adding another layer to the analysis.

In accordance with the settled case law of the EU courts to avoid preclusion the applicants set out each point of criticism in fact but also with respect to the specific infringement in law. This leads to some degree of repetition which cannot be avoided.

Section a) below looks at the SCDR as a whole, (b) focusses only on nuclear activities as set out in Annex I (4.26 to 4.28) and Annex II (4.26-4.28) and (c) on activities involving fossil gas set out in Annex I (4.29- 4.31) and II (4.29-4.31).

a) Common formal criteria

(1) Infringement of competence provisions in the Taxonomy Regulation

The Commission lacks competence to adopt a delegated act such as the SCDR.

The legal basis to adopt Delegated Acts within the Taxonomy regulation regarding climate change mitigation and adaptation activities derives from Articles. 8(4), 10(3), 11(3) in conjunction with Art. 17, 19 and 23 Taxonomy Regulation.

Following Art. 290(1) subpara (1) TFEU, a legislative act may delegate to the Commission the power of adopting Delegated Acts to supplement or amend non-

essential elements of the legislative act (parent act). Subpara (2) defines conditions for the enabling clause in secondary EU law: "the objectives, content, scope and duration of the delegation of power shall be explicitly defined in the legislative acts. The essential elements of an area shall be reserved for the legislative act and accordingly shall not be the subject of a delegation of power."

To confer powers to the Commission, Articles 8(4), 10(3), 11(3) in conjunction with Articles 17, 19 and 23 must explicitly state the duration of the delegated power as well as the objective, (non-essential) content and scope. These requirements are there to ensure the effective limitation of the delegated power and to control the Commission's power in a timely and content-wise dimension.

In the formal dimension, the Taxonomy Regulation limits the exercise of this power time-wise

- **by 1 June 2021** regarding technical assessment criteria (TCA) for reporting provisions for non financial undertakings under Art. 8(4) Taxonomy regulation
- to the "**31 December 2020**, with a view to ensuring its application from 1 January 2022" regarding Climate Change Mitigation and corresponding DNSH TCAs under Art. 10(3)-(6)
- "**by 31 December 2020**, with a view to ensuring its application from 1 January 2022" regarding Climate Change Mitigation and corresponding DNSH TCAs under Art. 10(3)-(6).

Further, the power is formally limited content-wise to adopt (emph. add.)

- "**a** delegated act" to supplement Art. 8 Taxonomy regulation; in the clause regarding the time limit the provision speaks of "**that** delegated act" (Art. 8(4) TR)
- the TCA regarding Climate Change Mitigation and the corresponding DNSH criteria "in **one** delegated act" (Art. 10(5) Taxonomy regulation)
- the TCA regarding Climate Change Adaptation and the corresponding DNSH criteria "in **one** delegated act" (Art. 10(5) Taxonomy regulation)

The latter clearly indicates, that the Commission can make use of its power one time on each environmental goal as well as regarding single reporting measures.

Both limits of the delegated power are not respected by the Commission:

(a) Time and Date

The Commission adopted the SCDR on 9 March 2022. This is clearly not within the time limit set out in the Taxonomy regulation. Above all, the SCDR is not adopted with a view to ensuring its application from 1 January 2022 as this is objectively impossible .

This already leads to the invalidity of the SCDR.[37] Time limits, especially such so called sunset clauses, are a core element to limit delegated powers in order to respect the democracy principle. The legislature, as the (more) directly elected and publicly legitimated institution, has to ensure that its delegations are not misused over time.[38] The democracy principle means sovereignty just over a certain amount of time. This would not be guaranteed if the executive, i.e. the Commission, could exercise delegated power in an unlimited time span although strict time limits are set in the delegating provisions. Observance of the time limit is not just a formal criterion with no legal consequences if not met, but an essential procedural requirement whose respect is considered by the Treaties as an essential requirement for the validity of EU act.

The general clause of power delegation in Art. 23(2) Taxonomy Regulation does not change this, as the provisions contain specific criteria regarding the time frame (*lex specialis derogat legi generali*). Even if one might see this as a contradictive result as all of the specific provisions (Art. 8, as well as Articles 10 to15 TR) contain their own specific time frames, no argument against the specific time frame can be derived from this.

Using the general empowerment clause with the unlimited time frame would openly ignore the specific time limits set by the legislator. In this case, the whole delegation of powers would infringe EU primary law. The delegation clauses would be void, as this contradiction is not compatible with the rationale of Art. 290(1) TFEU of ensuring the predictable use of the delegated power.

This reasoning is also not contestable by referring to Art. 19(5) Taxonomy Regulation. This provision is evidently not applicable as a legal basis, as its only purpose is to ensure the existing delegated act can be revised and updated to reflect “scientific and technological developments”. In the case of the SCDR, the Commission did not revise criteria for economic activities but adopted ones. No relevant technological or scientific development has taken place or was invoked by Commission or the expert groups it consulted within the time frame between the first and second delegated act.

The wording “amend” in Art 19 (5) is to be distinguished from “supplement” and therefore to be tied to different requirements. Moreover, the Commission itself does not base its SCDR on Art. 19(5) TR (see preamble of the SCDR).

(b) Several delegated acts

Even more outside of the range of the enabling clause, the Commission adopted not one single delegated act, but two – the first FCDR in 2021 and the second one now in 2022. This clearly infringes the clear wording of the legal basis. Requiring

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[37] Calliess/Ruffert/Ruffert, 6. Aufl. 2022, AEUV Art. 290 Rn. 16.

[38] c.f. Grabitz/Hilf/Nettesheim/Nettesheim, 75. EL Januar 2022, AEUV Art. 290 Rn. 50.

one single act is a way to ensure that the exercise of the power granted to the Commission stays limited and foreseeable in light of the democracy principle and of Art. 290 TFEU. Thus, Art. 8(4) Taxonomy regulation with its specific wording is to be interpreted narrowly.

The adoption of several acts also contravenes the aim of the Taxonomy as the Delegated Act must be adopted "with a view to ensuring its application from 1 January 2022". In order to providing a reliable classification of green investments, applicants e.g. who make investment portfolios have to assess all considerable economic activities at the same time, i.e. the time of compilation of the portfolio. Adding activities later could cause damage to these applicants as the portfolio misses more opportunities to be included. At the same time, market confusion arises.

As the public debate regarding fossil gas and nuclear energy shows, this has already become reality: investors, which initially relied on a truly green Taxonomy and assumed that gas and nuclear would remain excluded, are now uncertain about the development of this classification, as the mentioned activities are not considered as economically sustainable in many EU Member States.

The clear formal provision to just adopt "one" delegated act can not be bypassed by adopting a second delegated act (the SCDR) which "amends" the first one by merging with it. The FCDR (EU/2021/2139) covered specific activities only. The fact that it mentions the ongoing debate on nuclear energy in Rec. 27 and for gas in Rec. 28 does not alter the legal assessment above.

This legal error leads to the illegality of the SCDR even if the high review standards described above are be applied. It fits both under *misuse of power* and *an infringement of the relevant procedural rules*.[39]

(2) No enabling clause for an "Amendment"

Art. 290(1) TFEU differentiates between "supplementation" and "amendment".

The taxonomy regulation allows the Commission only to adopt delegated acts as a "supplementation" (See Art. 8(4), 10(3), 11(3) Taxonomy Regulation). An amendment is therefore excluded.

The differentiation in Art 290 TFEU is an expression of the democracy principle, as an amendment leads to stronger delegated powers instead of just supplementing, completing, existing material criteria.

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[39] see Case C-42/84, Remia v. Commission, EU:C:1985:327, para 34.

Adding fossil gas and nuclear energy generation through the SCDR amounts - in effect - to an amendment of the pre-defined eligible energy generation activities as listed in Art. 10(1) lit. (a) Taxonomy Regulation which refers to the RED II directive (Directive (EU) 2018/2001). The list of energy generation techniques is exhaustive. This is confirmed by a comparison to the other climate change mitigation activities, in para. b) and c) et seq. which are more abstract.

To define a specific way to provide e.g. "clean mobility" can be seen as a supplementation because of the wide wording, in contrast to nuclear energy generation under "renewable energy generation" para (a).

The same applies to Art. 10(2) Taxonomy Regulation, as only activities "for the purpose of paragraph 1" can qualify as a transitional activity; the pre-defined list of energy generation techniques must therefore be respected.

We will revisit these instances of where the Commission has made use of its **competence** in excess to what is granted below in detail. Generally, interpreting its task to (only) supplement the criteria of Art. 10(1), (2), 11 TR correctly, the Commission would not have been able to expressly include fossil gas and nuclear energy generation activities at all.

(3) Infringements regarding the procedure on scientific advisory

To understand the Taxonomy-specific procedure on how the Commission is obliged to gather the scientic facts that underpin the economical, technological and environmental implications of and how to include an economic activity in the Taxonomy regulation and set specific TSC, a short overview on the fact gathering process and the context is necessary, below (i). Procedural errors regarding the Platform are established under (ii), and regarding the Member State's Expert Group (iii).

(i) Fact gathering process and context

The Commission established the "Technical Experts Group" (TEG) on the basis of the 2018 "Commission action plan on financing sustainable growth"[40] which then adopted proposals for a EU taxonomy in 2020. The TEG is supposed to assist the COM in developing their legislative proposals for the "Sustainable Finance" legislative package. In the 2020 "Technical Annex to the TEG Final Report on the EU taxonomy"[41] (TEG Final Report) it proposes **nuclear energy** as a potential climate mitigation activity:

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[40] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0097 (9/8/22)

[41] https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.pdf (9/8/22).

> *"Evidence on the potential substantial contribution of nuclear energy to climate mitigation objectives was extensive and clear. The potential role of nuclear energy in low carbon energy supply is well documented."*[42]

However it refrained from assessing the significant harm potential as there were still "empirical data gaps on key DNSH issues".

Regarding gas, the TEG created technical screening criteria, that were proposed for adoption.[43] Further, it developed an overarching, technology-agnostic and science based threshold for GHG intensity, that counts to 100 gCO2e/kWh with a decrease in every five years, in order to reach zero in 2050.[44]

The COM instructed the Joint Research Centre (JRC) to further assess nuclear energy as a Taxonomy candidate based on this findings of the TEG. The JRC adopted the "Technical assessment of nuclear energy with respect to the 'do no significant harm' criteria of Regulation (EU) 2020/852 ('Taxonomy Regulation')" (JRC Report).[45]

Gas was not further examined by other expert groups.

The JRC Report is limited to review nuclear energy aspects in the light of the DNSH principle. The contribution of nuclear energy to climate change mitigation was not critically reviewed and, as will be shown below, and the deliberations of both the TEG and JRC are based on insufficient evidence. Similarly, the Terms of reference exclude the assessment of DNSH with respect to the objectives of climate mitigation and adaptation, so that the underlying evidence is also not complete.[46]

This so called "science for policy"[47] report by the JRC has subsequently been reviewed by the Group of Experts on radiation protection and waste management under Article 31 of the Euratom Treaty (Art. 31 Group)[48] as well as the Scientific

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[42] Technical annex TEG report, p. 210, see also ibid. fn. 240, 241

[43] TEG Final Report, p. 231.

[44] see TEG Final Report, p. 205 ff. for a detailed explanation.

[45] see; https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/210329-jrc-report-nuclear-energy-assessment_en.pdf , see also: https://publications.jrc.ec.europa.eu/repository/handle/JRC125953 9/8/22).

[46] JRC report, p. 18.

[47] https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en 9/8/22).

[48] The „Art. 31 report" can be accessed here: https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/210630-nuclear-energy-jrc-review-article-31-report_en.pdf (9/8/22).

Committee on Health, Environmental and Emerging Risks on environmental impacts (SCHEER Group).[49]

The Art. 31 Group is in charge of developing basic standards for the radiation protection of civil society in the Euratom community (Art. 30, 31 Euratom treaty).[50] The Scheer Group consists of academic and national authority experts.[51] It provides opinions on risks as requested by the Commission.

(ii) Procedural errors regarding the Platform

Arts. 10(4) and 11(4) Taxonomy Regulation stipulate that the Commission is obliged to consult the *Platform* referred to in Art. 20 before it adopts technical screening criteria (TSC) on climate change mitigation, adaptation and the corresponding DNSH (do no significant harm) criteria.

According to Art. 20(1) and (2) TR the Platform shall explicitly advise the COM on the issuing of the TSC. It consists of a "balanced" board of experts from public and private organisations as well as universities, scientific organisations and persons who have proven knowledge and experience in the relevant field. The tasks are explicitly defined.

In essence, the Platform is established to ensure a neutral, objective and balanced expertise on the TSC. It's there to ensure the different interests of all interest groups are respected. Thus, the mandatory consultation clause is an essential procedural requirement.

The COM has consulted the Platform but nearly completely ignored its recommendations.[52] Regarding Fossil Gas, the Commission especially ignored the advice to consider 100 gCO2e/kWh as the only plausible threshold, that was also recommended by the TEG report[53].[54] For nuclear energy generation, the Platform criticized that the TSC on Nuclear does not fulfil the DNSH

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[49] The „Scheer Report" can be accessed here: https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/210629-nuclear-energy-jrc-review-scheer-report_en.pdf (9/8/22)

[50] Art. 1 Euratom reads: "It shall be the task of the [Euratom] Community (...) by creating the conditions necessary for the speedy establishment and growth of nuclear industries."

[51] https://ec.europa.eu/health/scientific-committees/scientific-committee-health-environmental-and-emerging-risks-scheer/scheer-members_en (9/8/22).

[52] compare SCDR requirements to p. 23 of the Platform report, https://finance.ec.europa.eu/system/files/2022-01/220121-sustainable-finance-platform-response-taxonomy-complementary-delegated-act_en.pdf (9/8/22)

[53] see in detail below c) 2), 3) and 4).

[54] see ibid.

requirements and moreover new nuclear plants could not ensure a substantial contribution to 2050 climate neutrality goals.[55]

In conclusion, the Platform states:

> *"In their current form, the draft CDA TSCs are not suitable for green, sustainable finance products or instruments in the market today. (...)* ***Recommendation****: That the European Commission takes adequate time to address and act on the platform feedback to ensure consistency with the Taxonomy Regulation, and to allow sufficient time for impact assessments."*[56]

The Commission limits its response to: "The Commission rejects this criticism insofar as it seems to be based on the assumption, which is contrary to the purpose of Article 10(2) of the Taxonomy Regulation, that only the technical screening criteria that ensure the most substantial contribution to the climate change mitigation objective and do no harm, or the least harm to the other environmental objectives could be included in the Delegated Act."

This is evidently no adequate assessment of the arguments of the Platform (and with that, of the TEG opinions). In the case of nuclear generation activities, this criticism is not alleviated by the Art. 31 Group, nor by the JRC and the SCHEER Review (see in Detail below b) about these conceptual errors).

To sum up, Art. 20 and Art. 10(4) and 11(4) TR are procedural provisions requiring the Commission to consult the Platform adequately and adequately assess the report of the Platform.

The Commission infringed these provisions in four ways:

First, there is no evidence that it thoroughly assessed the Platform's arguments. The only statement by the Commission on this is purely abstract and does not allow verifying whether and how it conducted an assessment.

Secondly, the short amount of time that elapsed between the release of the Platform's report on the 21st of January 2022, the "approved in principle" of the delegated act on the 2nd of February 2022 and the "formal adoption" in March 2022 indicates that no thorough examination by the Commission has taken place. This evidently infringes Art. 10(4) and 11(4), as the Commission has the obligation to consult the Platform "prior to adopting" the delegated act. This provision is meaningless, if the Commission does not thoroughly assesses the Recommendations of the Platform, especially in a case, when fundamental

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[55] see p. 4 of the Platform report, https://finance.ec.europa.eu/system/files/2022-01/220121-sustainable-finance-platform-response-taxonomy-complementary-delegated-act_en.pdf (9/8/22)

[56] see Platform response, p. 6.

criticisms is voiced and the Platform itself indicates that the provided examination time is too short to address the complexity of the issues involved. The behaviour of the Commission can only be interpreted as by-passing the Platform and avoiding dealing with its criticism altogether.

Thirdly, in the case of nuclear generation activities, the Commission consulted the JRC, SCHEER and EURATOM Art. 13 expert groups. These groups do not have a legal basis in the Taxonomy Regulation but evidently favour nuclear and fossil gas activities and therefore at least influenced the adoption process compromising its impartiality. This is a severe procedural legal error which jeopardises the legal content of Art. 19, 20 Taxonomy Regulation, all of which require *balanced* experts consulting. .

This error may have been avoided by the Commission had it pointed out why the above mentioned groups and organization's expertise is superior to the expertise of the expert group designated by the law or by following the recommendation of the latter.

This imbalance in the consultation process is made worse by the fact that the Expert Groups with no legal basis in the SCDR – TEG, JRC, Art. 31, SCHEER – were consulted over the course of the years 2020 and 2021, while the legally mandated Platform was given only less than two weeks, (which became roughly three weeks after a prolongation of the deadline set by the Commission) to assess the subject matter.[57]

The Platform states explicitly:

> *"The Platform has done its best to address the key concerns about the draft CDA in the short time available for review. There was not time to consult outside the Platform group. The Platform would have preferred more time for deliberation and is willing to further support the European Commission, in line with its mandate, to explore and develop an approach that could support investments for transitioning energy supply without weakening the Taxonomy as classification for green sustainable activities for investment decisions."*[58]

Taking this into account, not only has the Commission bypassed the central expert group foreseen by the Taxonomy Regulation itself, but it has also hampered its work by allowing only three weeks for the Platform to comprehensively assess the subject matter of the SCDA. .

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[57] see https://finance.ec.europa.eu/system/files/2022-01/220121-sustainable-finance-platform-response-taxonomy-complementary-delegated-act_en.pdf p. 1(9/8/22)

[58] see Platform report, p. 2.

This procedure evidently also infringes Art. 23(4) Taxonomy Regulation, as

- not all necessary expertise is gathered, as required in this provision; instead the possibilities to effectively gather this expertise are precluded;
- The Commission did not consult the Platform "during the development of the legal act" as this happened already in 2021; the first draft of the SCDR was nearly not changed anymore in 2022. This is also indicated by the fact, that the Commission consulted all the other, non-official expert groups before the Platform.

Furthermore, the Commission prevented the Platform to "take into account the views of a wide range of stakeholders" in accordance with Art. 20(3) TR, as the Platform simply had no time to do that.

This also effects an infringement of Art. 20(2) lit. (a) Taxonomy Regulation, as the Commission could not be adequately advised by the Platform; especially as it was not able to fulfil its task under Art. 20(2) lit. (a) TR in conjunction with Art. 19(f) TR to base the assessment on conclusive scientific evidence within the set time frame of three weeks.

As to the standard of review:

The Commission is in *non-compliance with relevant procedural provisions*. It essentially has deprived a legally mandated group, the Platform, of any meaningful influence.

Because of this deficit the COM's decision also fails the *manifest error test*, as the factual basis is intentionally not gathered as prescribed in the specific field of law (Art. 20, 10(4) and 11(4) TR) as well as the specific standard of evidence is not complied with (Art. 19(f) TR – *conclusive* evidence).

The lack of adequate reasoning supporting the surprising decisions in light of the official recommendations by the Platform, also raise *serious doubts* as tot the lawfulness of these decisions.

(iii) Infringement of the procedural provisions regarding the Member States Expert Group

According to Art. 24 Taxonomy Regulation, the Member State Expert Group shall advise the Commission on the appropriateness of the technical screening criteria and the approach taken by the Platform regarding the development of those criteria in accordance with Article 19.

According to Art. 23(4), the Commission shall gather all necessary expertise, prior to the adoption and during the development of delegated acts, including

through the consultation of the experts of the Member State Expert Group (MESG) on Sustainable Finance.

In light of what was said above, there are also *serious doubts* that between the mentioned dates in early 2022 the requirements regarding the MESG were fulfilled. The Commission simply declares that it has consulted the MESG but does not make transparent to what extent. This potentially implicates another error in law regarding *relevant procedural provisions.*

(5) Infringement of the Interinstitutional Agreement on better law-making

Art. 23(4) Taxonomy Regulation incorporates the procedural provisions of the Interinstitutional Agreement of 13 April 2016 on better law-making (IABL) as mandatory ("shall act") before adopting a delegated act.

According to No. 13 IABL, the Commission will carry out impact assessments of its delegated acts, which have in particular significant economic, environmental or social impacts. No. 12(3) IABL prescribes that "Impact assessments should cover the existence, scale and consequences of a problem and the question whether or not Union action is needed. They should map out alternative solutions and, where possible, potential short and long-term costs and benefits, assessing the economic, environmental and social impacts in an integrated and balanced way and using both qualitative and quantitative analyses".

The Commission explicitly states in its SCDR draft C(2022) 631/ 3 on p. 5 that it did not carry out an impact assessment. Regarding Nuclear, there has been a detailed technical assessment which the COM holds sufficient. This evidently infringes Art. 23(4) sentence 2 Taxonomy Regulation which requires an impact assessment prior to law making.

The reasoning by the Commission behind this is not convincing[59]. As cited above, in an impact assessment a number of perspectives have to be taken into account. The Commission states further (see ibid.), that the policy choices are already made. This is not true for the inclusion of fossil gas and nuclear energy in the Taxonomy, as the Taxonomy regulation does not list such items (see already above, III.1 a (2).
Even assuming that the Taxonomy Regulation does not implicitly prohibits these energy generation techniques (the opposite will be show below), the choices were definitely not made in the text of the law.

Moreover, the Commission's argument to omit the impact assessment, i.e. that the (First) Taxonomy Climate Delegated Act (FCDR) was based on advice received from the TEG and from the Platform, is highly misleading. Fossil gas

[59] SCDR draft C(2022) 631 / 3 on p. 5

and nuclear were not part of the FCDR, as explicitly stated in the recitals. The TEG explicitly stated that it cannot evaluate the facts on nuclear because of the complexity regarding the DNSH principle, thus making no assertion whatsoever as to the impact. The Platform rejected nearly all proposals regarding fossil gas and nuclear and the impact assessment of the FCDR actually excludes nuclear and gas.[60]

Given that

- there is strong evidence from official expert groups (Platform, Scheer, TEG) as well as renowned research institutes against including fossil gas and nuclear in the Taxonomy, especially regarding the lack or of contribution to climate change mitigation; (see below b)(2)(i) and c)(2))
- a very limited technical assessment was executed (see ibid.), in particular regarding Nuclear, as the Commission instructed the additional assessment of the expert groups (JRC, SCHEER, Art. 31) to only examine DNSH, but not the contribution to climate change mitigation
- no alternatives were mapped out comprehensively, in particular with alternative thresholds models (regarding CO2e) that match technical feasibility and better address an lock-in effect,

there are *serious doubts* regarding the legality of the SCDR since *relevant procedural provisions* have been contravened deliberately.

Complying with the procedural provisions would have likely yielded a different result. Considering the above, especially the assessment regarding the climate change contribution and the alternative threshold design would have highly likely led to a different result, also addressing the criticism articulated by member states[61], civil society[62] and experts[63].

(6) Art. 6(4) EU Climate Law
The Commission infringed the procedural provision of Art. 6(4) EU Climate law (Regulation (EU) 2021/1119). It did not carry out a Climate Assessment.

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[60] Impact assessment first Climate delegated act, p. 8, https://ec.europa.eu/finance/docs/level-2-measures/taxonomy-regulation-delegated-act-2021-2800-impact-assessment_en.pdf (9/8/22).

[61] e.g. German authority expertise on Nulcear (BASE), Expert response to the report by the EU Commission`s Joint Research Centre entitled "Technical assessment of nuclear energy with respect to the 'Do No Significant Harm' criteria in Regulation (EU) 2020/852, the 'Taxonomy Regulation'" (bund.de) (9/8/22) or the Opinion paper of the German Federal Government, https://www.bmwk.de/Redaktion/DE/Downloads/S-T/stellungnahme-bundesregierung-taxonomie.pdf?__blob=publicationFile&v=8 (08/09/2022).

[62] e.g. The EU can't afford labelling fossil gas and nuclear as green - CAN Europe (9/8/22); EU-Taxonomie Entscheidung - NABU (9/8/22); EU-Taxonomie: Atomkraft und Erdgas sind nicht nachhaltig | Umweltbundesamt (9/8/22);

[63] see Becker Report, Aurora report (Annex 12 and 13).

Art. 6(4) EU Climate law requires the Commission to asses any draft measure or legislative proposal before adoption to ensure it is aligned with the climate-neutrality objective set out in Article 2(1) EU Climate Law and the Union 2030 and 2040 climate targets. By omitting this assessment, the Commission also fails the other formal requirements of Art. 6(4), e.g. publishing the result or stating the reasons, why a non-alignment with the climate goals results from the proposed measures.

The absence of a climate assessment influences the decision of the Commission, as the assessment would have shown that a (substantive) contribution to climate change mitigation with the proposed criteria on Fossil Gas and Nuclear can not be realised.

Apart from simply infringing EU primary law, this again raises *serious doubts* as to the legality of the SCDR (contravening *relevant procedural provisions.)*

b) Material criteria regarding nuclear energy activities

The SCDR does not meet the material requirements set out in its parent act, the Taxonomy Regulation, when qualifying nuclear energy as environmental sustainable.

According to Art. 3(d) Taxonomy Regulation in conjunction with Art. 10(3), 11(3) and the respective para. 2 of Art. 12 to 15, the TSC shall supplement the provisions of the Taxonomy Regulation describing economic activities, which are substantially contributing to one or more environmental goals and supplement the requirements of the “do no significant harm” standard (DNSH).

Given this regulatory technique, the abstract requirements of Art. 10(3), 11(3) and the respective para. 2 of Art. 12 to 15 are at the same time the legal bases and outer limits of the technical screening criteria adopted by the delegated act, as formally specified in Art. 23 Taxonomy Regulation. Additionally, a number of procedural and material criteria have to be considered, in particular those laid out by Art. 19 Taxonomy Regulation.

The limit of the respective legal bases are not met: the SCDR does not set out TSC *supplementing,* but rather *amending* and contradicting the substantial contribution provisions. The specification of the DNSH criteria is unlawful and unreasonable, given that they have no effect or cannot be satisfied in practice. Nuclear energy creates significant harm to all of the listed environmental goals set out in Art. 9 Taxonomy Regulation.

In detail:

(1) Delegated Acts under Art. 3 (d), 23 must respect Art 290 TFEU

Art. 3 (d), 23 Taxonomy Regulation, if duly interpreted in the light of Art. 290 TFEU does not cover nuclear energy at all given that delegated powers must be reviewed strictly.

As already stated above it will be shown below (2.b)(2)(f)), under Art. 290 TFEU, delegation is only possible if the parent act contains material criteria ensuring that potential delegated acts are foreseeable and observe the boundaries of substantial decisions made in the parent act. Delegated acts, in turn, cannot decide on substantial matters independently of the enabling provisions set out in the parent act.

This narrow corridor of possible decisions that the Commission can take in order to supplement the Taxonomy Regulation is reaffirmed by the wording of 3 (d), 10(3), 11(3), "technical screening criteria." This term aims at *rules for practical use* by the addressees of the Taxonomy regime, not at setting out substantial or non-substantial material provisions. This argument is also supported by the close incorporation of the technical expert group like the TEG and the Platform (Art. 20, 24). Moreover, following Art. 10(1) lit. (a) Taxonomy Regulation, by referring to the RED II directive, the list of eligible energy generation technologies in the TR is exhaustive. This is confirmed by a comparison with the other climate change mitigation activities, which are mostly more abstract (see already supra ##, see also infra).

Adding nuclear generation in the SCDR is a new substantial decision, not a technical screening criterion.

As will be shown below ([2] ff.), nuclear energy bears a great variety of risks that potentially affect every single member state in the EU as well as a countless number of future generations. With the dependency on third states, such as Russia, as well as other states not respecting Human Rights, the decision to promote nuclear energy is a highly political topic. The example of the Zaporizhzhia plant shows that nuclear energy makes states extraordinary vulnerable. The existing connection between proliferation and atomic weapons is a matter requiring democratic decision making. Lastly, as will also be shown, the inclusion of nuclear energy is no contribution to climate change mitigation or adaptation; but rather an obstacle in the way to decarbonized energy systems. All of these aspects have lead to a intense controversy in the public in the whole of the Union, not only following the Commission decision on the SCDR, but also due to the implications of Russia's illegal war against Ukraine.

Including nuclear energy in the Taxonomy will lower the weighted average cost of capital (WACC) and therefore also the Levelized Cost of Electricity (LCOE) for nuclear energy. It can reasonably be expected that this will lead to more

nuclear energy generation capacity on European energy markets. It will therefore increase the aforementioned risks and issues.

cf. for details on this infra c)(4)(v)(aa).

Against this backdrop, a delegation of powers that enables inclusion of nuclear energy generation into a delegated act needs an explicit empowerment. An enabling clause in the Taxonomy Regulation itself even hinting at this type of energy generation is missing. The opposite is true: wording, purpose and (historic) context of the relevant provisions of the Taxonomy Regulation show that only renewables as cited in Art 10 (1) a) are candidates to be "environmentally sustainable". The SCDR therefore is adopted in excess of competence regarding especially, but not only, nuclear energy (Annex I, II, each 4.26-4.28).

(2) Infringement of the climate change mitigation requirements

In order to be compatible with the climate change mitigation requirements set out in Art. 10(1), (2) Taxonomy Regulation, an economic activity must substantially contribute to climate change mitigation by complying with one of the following three categories:

(i) *Mitigation activity* in Art. 10(1) point (a) to (h) Taxonomy regulation

(ii) *Mitigation enabling activity* in accordance with Art. 10(1) point (i), Art. 16 Taxonomy regulation

(iii) *Transitional* activity pursuant to Art. 10(2) Taxonomy regulation.

As it will be shown below, nuclear power does not in fact meet a single one of the aforementioned criteria.

In order to substantiate the technical and factual arguments, the Applicants assigned the Nuclear safety and risk expert Mrs. Dipl.-Ing. Oda Becker to issue a technical opinion on the most relevant topics that are addressed with the SCDR. The report is attached as

Annex 12 (Becker Report)

(i) No mitigation activity

Art. 10(1) Taxonomy Regulation consists of numerous criteria that will be addressed in turn below.

It is important to note at this stage that this legal analysis is purely based on wording and legal meaning, and opens no discretion. If the terms of the Taxonomy Regulation are not met, nuclear generation cannot be defined through technical screening criteria set by the Commission under Art 10 (1).

(aa) Contradicting Art. 10(1) first half-sentence TR

According to Art. 10(1) first half-sentence TR, an economic activity shall qualify as contributing substantially to climate change mitigation where that activity contributes substantially to the stabilisation of greenhouse gas (GHG) concentrations in the atmosphere at a level which prevents dangerous anthropogenic interference with the climate system consistent with the long-term temperature goal of the Paris Agreement through the avoidance or reduction of greenhouse gas emissions.

Art. 10(1) also lays out an exhaustive list of eligible activities. However, the first-half sentence of Art. 10(1) TR is an overarching criterion. Listed activities can only qualify if they also comply with the first half-sentence of Art. 10(1). . In particular, an activity that does not follow a Paris-compatible reduction pathway cannot qualify as a climate change mitigation measure.

Firstly, a stabilisation of greenhouse gas concentrations in the atmosphere consistent with the long-term temperature goal of the Paris Agreement cannot be determined or factually achieved with nuclear energy (SCDR Annex I, 4.26-4.28) based on the assumption of the Commission regarding the timeliness of construction and market entry of New Nuclear Power Plants (NPP).

The JRC Report presents an assessment of the alleged contribution of the use of nuclear to climate change mitigation.[64] The JRC Report compares the contribution made to climate protection by generating nuclear energy with other energy generation options.[65] These findings are the basis of the Commission's decision enshrined in the SCDR. The assumptions are factually false:

For four NPP which are currently being built in the EU, the "plan to operation time" of NPP is 10 to 19 years. In reality, the construction phases are much longer. Poland started its nuclear program in 1974, until now no NPP has entered the market. In the UK, former prime minister Thatcher called for more NPP already in 1989, but no new NPP is in operation until now. Only two reactors are under construction as of today.

see Becker Report, p. 65 f.

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[64] JRC Report, Part A 3.2.1, p. 35ff and 3.2.2, p. 39ff.
[65] JRC Report, Part A 3.2.2, p. 39ff.

This is crucial, as any major expansion of nuclear energy would delay the decommissioning of fossil-fired power plants, as the latter would have to remain in operation during the NPP construction period and therefore make it hard to achieve the climate change mitigation objective. During this time, vast amounts of GHG would be emitted, that must be taken into account when considering the NPP's GHG footprint. Additionally, investments in nuclear energy hinder investments in and the build-out of alternative low GHG energy capacity during construction time, since a great market share needs to be kept free to accommodate the capacity of a NPP. The development of RE is also hampered during this time, because of the high capital intensity of NPP. This capital could used to expand alternative energy sources like solar, wind and small-hydro.

see Becker Report, p. 65f.

The corresponding assertions of the JRC, which are used as the scientific base of the Commission's assessment, are unfounded in this regard.

The JRC Report's assessment of the alleged contribution of the use of nuclear to climate change mitigation are based on overly optimistic estimations about the role of nuclear energy in the EU's future. This opinion is shared by the German Federal Office for the Safety of Nuclear Waste Management (BASE) and the Federal Office for Radiation Protection (BfS).

see Becker Report, p. 65

The JRC underlines the great importance of using nuclear energy in Europe for climate change mitigation.[66] Yet, as it will be shown below, the installation and operation of non-flexible energy generation technologies directly negatively affects the build-out of renewables and sustainable flexibility technologies (see (4)(v)(bb) and (cc)). Hence maintaining a high share of non-flexible energy sources in the energy system can be a (imprudent) political decision that is ignoring high risks, borrowing from future generations, vulnerability and a vast amount of less GHG savings.

In this context, the alleged contribution of NPP is put in an overly positive light, rather the asserted importance of nuclear energy is indefensible:

The JRC Report asserts that **100 GW of nuclear capacity will operate in 2050**, which is an enormous and certainly overstated volume. This capacity would correspond to the installation of around **60 to 80 new nuclear power plants.** The estimation that the share of nuclear energy of 22% will continue until the year 2050, while overall electricity production increases, presupposes a massive expansion of nuclear power plants in Europe. As already stated, there are currently four nuclear plants in the construction phase. Empiric evidence shows

[66] JRC Report, Part A 3.2.1, p. 35ff and (Figure 3.2-4).

that this construction phase can last up to nearly 50 years. Moreover, most of the European nuclear power plants are more than 30 years old, 66 of the 106 currently in service in the EU are between 30 and 40 years old and 26 are more than 40 years old. The nuclear power plants were originally designed for a lifetime between 30 and 40 years. Refurbishment is therefore very uncertain.

see Becker Report, p. 65

Thus, these expectations of a massive expansion of nuclear capacity cannot be soundly derived from actual energy market development in the present and past.

The forecast presented in the JRC Report further presupposes extensive retrofitting of the ageing nuclear power plants in the EU. Implied are a lifetime for all existing nuclear power plants within the EU of about 60 years. This is evidently unrealistic, not least because of shutdowns that have already been publicly announced, including those in Germany.

see Becker Report, p. 65

Regarding the contribution to climate mitigation of small modular reactors (SMR), the JRC Report even fails to consider that these reactor types are still in the research phase. A market introduction in time to contribute to EU climate mitigation targets (2030, 2040, 2050) is unreasonable. In addition, the report does not cover the numerous unresolved issues about safety, transportation, dismantling and disposal that are connected with this type of reactor.

see Becker Report, p. 65

In conclusion, the JRC assessment is evidently unfounded and affected by scientific malpractice. The assumptions are widely underpinned by a single article, which is based on a model calculation. The JRC report blindly adopts this model calculation without scientific classification and without specifying any uncertainties.
The evaluation in the Becker Report concludes:

> "The considerations of the JRC report must be reviewed critically, this presentation by the JRC is suspicious from a professional point of view and possibly indicates a lack of adequate independence."

see Becker Report, p. 65
see also Becker Report, B.3.3.1.

Thus, this unfounded model of the future adopted by the Commission on the basis of the JRC report does not provide a sound basis to review the compliance with a Paris-compatible reduction path, i.e. a substantial contribution to the stabilization of greenhouse gas concentrations in the atmosphere at a level which prevents dangerous anthropogenic interference with the climate system consistent with the

long-term temperature goal of the Paris Agreement. The estimations cannot be validated. Above all, the factual situation already gives strong indications that there is no compliance with the mentioned pathway, as any new NPP would be in operation too late to make any contribution – due to secondary effects during the building phase, the opposite is the case.

(bb) No generation of renewable energy

Pursuant to Art. 10(1)(a) Taxonomy Regulation, an economic activity can qualify as a substantial contribution by generating, transmitting, storing, distributing or using renewable energy in line with Directive (EU) 2018/2001 (RED II directive).

As already stated above, nuclear energy activities as described in SCDR Annex I, 4.26-4.28 are not "generating (…) or using (…) renewable energy". Nuclear energy is not listed in Art. 2 (1) RED II directive. This list is exhaustive (wording: "namely", "and"). Moreover, the energy carriers of nuclear energy are not "renewable". This was confirmed by the Commission in the first SCDR draft.[67]

In fact, the debate during the development of the Taxonomy Regulation itself indicates nuclear energy was intentionally excluded from the regime. Both Parliament and the Commission decided to change the text in order to ensure the delegated act would not include nuclear energy.[68]

This legislative history makes sense since limiting the list of energy generation activities is essential to reach one of the core aims of the Taxonomy Regulation, namely to prevent green washing as described in Rec. 11. A clear and transparent set of energy sources is needed to create and maintain credibility of the Taxonomy system. If a high standard of sustainability is not kept by the Taxonomy, the need for private and mostly non transparent labels will return, making the Taxonomy less meaningful and undermining its intended effects on the market.

This corresponds with the fact that investing in Nuclear energy is not prohibited by the exclusion of such activities from the Taxonomy – investments are just not accelerated by the green label the Taxonomy affords. This is reaffirmed by the fact that the national classification scheme of France does not even include nuclear in its own state sustainability label,[69] albeit France being one of the main proponent of nuclear energy.

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[67] see COM (2022) 631 / 3, p. 5.

[68] see for further sources: Redeker/Sellner et. al. Kernenergie und die Taxonomie-Verordnung, in German Language only, Full Report, p. 18. : https://infothek.bmk.gv.at/rechts-gutachten-eu-taxonomie-atomkraft-keine-nachhaltige-investition/ (9/8/22)

[69] see https://www.ecologie.gouv.fr/label-greenfin (9/1/22).

The "Süddeutsche Zeitung"[70] illustrates the described credibility risks in an article oft last March: according to that article, credit institutes like the German DKB cannot finance most wind park farm projects as an economically sustainable activity. Those companies mostly consist of 5 to 6 employees, while the first Climate Delegated Act demands more than 500 employees. A large investment bank that frequently finances the huge capital demand of nuclear energy plant constructors and operators, on the other hand, would be allowed to declare a big share of its financing business to be sustainable. Such effects were clearly not intended by the initial law maker, the Parliament and Council.

(cc) No improvement of energy efficiency

The nuclear energy activities specified in SCDR Annex I, 4.26-4.28, are not "improving energy efficiency" within the meaning of Art. 10(1)(b) Taxonomy Regulation.

Art. 2(17) defines "energy efficiency" as the "more efficient use of energy at all stages of the energy chain from production to final consumption". The SCDR criteria regarding nuclear energy activities do not contain any requirements that demand energy efficiency improvement.

To clarify Article 10(1) lit. (b) TR is not applicable to the research, development, demonstration, deployment, construction, operation and refurbishment of nuclear energy facilities. Those activities can only be the object of efficiency improvement, but it is not the activity itself that is actively improving energy efficiency. Any other interpretation would render Art 10 (1) b) indistinct from the other paras in the same provision. The construction of a NPP also implementing efficiency improvements compared to other NPP can not be the clear and substantial emphasis of the project, as the main focus is the plant itself. Conceivable would be the change of a turbine which significantly raises the coefficient performance of an existing installation. Article 10(1) lit. (b) does not cover the selection of the energy carrier and generation process itself.

(dd) No increase of clean or climate-neutral mobility

The wording of Art. 10(1) point (c) TR refers only to directly mobility linked activities and is not applicable here. Comparing the normative content of point c) to of Art. (10)(1)(i) Taxonomy Regulation ("enabling any such activities"), the activity covered by point c) needs to be part of the clean or climate-neutral mobility system itself, e.g. charging stations for electric vehicles. There is no direct functionality for a mobility system conceivable in the case of nuclear energy.

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[70] Nr. 52, 4th March 2022, p. 18.

If the energy source for generating electricity to use in batteries for electric vehicles could fall under this provision, even a Diesel power plant could contribute to "increase of clean mobility" as the car itself is contributing to "clean" mobility (no local pollution). This can obviously not be the aim of this provision, as nuclear energy is the most severe pollutant in the energy sector. Furthermore, nuclear energy generation does not provide climate-neutral mobility, as the CO2 emissions of nuclear plants can be as high as high as 178 gCO2e/kWh (other studies naming 117 ± 29 gCO2e/kWh).[71]

No Nuclear plants are conceivable that are directly powering mobility solutions. NPPs feed the electricity into the grid, powering – with other plants – a great variety of electricity consumers. This is even more true when the fluctuation of other energy sources, mobility usage and other consuming activities are taken into account.

Even if - indirectly and adding various activities in between - the contribution of nuclear energy is seen as providing the high loads of electricity needed to produce power-base fuel (Power to Liquid, PTL), the upscaled use of them for mobility solutions will not happen. First, the use of these fuels is reserved for sectors and activities that are not directly electrifiable, as the power capacities will be limited. Secondly, the prices in €/litre would be much higher the as the prices for fossil fuels currently are. Fourthly , PTL is very energy-inefficient, as one kilometre with a PTL fuelled ICE equals to 5 to 7 kilometres with a BEV.[72]

(ee) No decarbonisation enabling energy infrastructure

Nuclear Energy activities as laid down in SCDR Annex I, 4.26-4.28 are not establishing energy infrastructures required for enabling the decarbonisation of energy systems as required under Art 10 (1) (g) Taxonomy Regulation.

The Cambridge dictionary reads for "establish":

> "to start something that will last for a long time, or to create or set something in a particular way"[73]

Establishing energy infrastructure therefore means to build this infrastructure in a lasting way.

The nuclear activities described in the Annex to the SCDR under 4. 26- 28 are not infrastructure that will last for a long time or create such infrastructure. They simply require or use infrastructure. In addition, they enable no infrastructure that is required for decarbonisation of energy systems[74]: inflexible energy plants lead

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[71] see Becker Report, p. 67.

[72] see e.g. https://www.transportenvironment.org/wp-content/uploads/2021/07/2021_Efuels_in_cars_briefing.pdf (9/8/22)

[73] https://dictionary.cambridge.org/dictionary/english/establish (9/8/22)

[74] See Becker Report p. 69 ff. and analogously for gas plants infra d)(4)(bb) and (cc):

to renewable energies' curtailment; the concept of "base load power" no longer applies.

Furthermore, the term "energy infrastructure" is excluding power plants in general. There is no definition of that term in the Taxonomy regulation. As per established case law of the ECJ, legal terms should be interpreted harmonically, if they are being used in related EU legislation unless the relevant legislation indicates a different interpretation.[75]

The TEN-E regulation (EU 347/2013), Art. 2(1) in conjunction with Annex II.2 defines energy infrastructure as equipment or facility, which falls under the energy infrastructure categories of long-distance pipes, storages, decompression facilities or transport related equipment facilities. Energy generation activities such as featured in the SCDR Annex 1 are not included in this list.

The TEN-E regulation aims at decarbonising the energy infrastructure and at reaching future energy and climate goals of the EU (Rec. [7] TEN-E regulation). Therefore, it is evidently a legislation related to the Taxonomy regulation.

In conclusion, nuclear energy related activities as set out in SCDR Annex I 4.26 to 4.28 do not comply with the requirement of lasting building or setting up of energy infrastructure; Art 10 (1) (g) is inapplicable.

(ff) Clean and efficient fuels (Art 10(1) h)

Art. 10(1)(h) Taxonomy Regulation allows including economic activities that substantially contribute to climate change mitigation by producing clean and efficient fuels from renewable or carbon-neutral sources (that comply with the other criteria in the chapeau of Art. 10 (1) Taxonomy Regulation).

The SCDR lists its Annex I, 4.27 the "Construction and safe operation" of NNP "including for hydrogen production". Indeed, hydrogen can serve as a clean and carbon-neutral fuel. However, the applicants point out again that nuclear energy is excluded as a climate change mitigation technology and nuclear fuel is excluded as a suitable energy carrier (see already above (bb)). SCDR Annex I, 4.27 is therefore already unlawful.

Even if the Commission does to follow this interpretation, (h) is still inapplicable as the criterion **"clean"** is not met by nuclear generation facilities. The meaning of the word "clean" in this context refers to non-polluting, environmentally hazard-free activities. The criterion is evidently not met: nuclear power plants, in particular those specified under 4.27 of the Annex emit radiation during operation causing adverse health effects (see Becker report p. 24 ff.), produce nuclear waste of all intensities of radiation (see Becker report p. 27 ff.), create significant risks

[75] Judgement of 4 October 2011, C-403/08 et al., ECLI:EU:C:2011:631.

of severe accidents that can destroy whole ecosystems and create long-term adverse consequences for humans and the environment (see Becker report, p. 6 ff.,), warming rivers with output of warm cooling water and harming local ecosystems, in particular with regularly lifting of environmental safety regulations (see Becker report, p. 83) etc. These hazards and risks will be referred to again in-depth below (see below (5)).

The activities included in Annex I, 4.27 are also not **"efficient".**

First, nuclear energy of all forms is not cost-efficient. The LCOE of Nuclear energy is at US$117 to US$163 per MWh, which is constantly rising. Over the past five years alone, the LCOE of nuclear electricity has risen by 39 percent, while renewables have now become the cheapest of any type of power generation.

see Becker Report, p. 79

In contrast to this, unsubsidized average electricity generating costs declined between 2015 and 2020 in the case of solar PV (crystalline, utility-scale) from US$64 to US$37 per MWh, and for onshore wind from US$55 to US$40 per MWh. Since 2009, LCOE regarding solar PV dropped by 90 percent, regarding onshore wind by 70 percent, while nuclear power increased by one third. The National Renewable Energy Laboratory (NREL) expected in 2018 that onshore wind power would get 27 percent cheaper during 2016–2050 and photovoltaics 60 percent, so by 2050 they should cost respectively around US$27/MWh and US$18/MWh in good sites.[76] The International Energy Agency (IEA) agrees that Solar PV costs fell by 65 percent between 2012 and 2017, and are projected to fall by a further 50% by 2040; onshore wind costs fell by 15% over the same period and are projected to fall by another 10–20% to 2040. Included in these costs are less than €5/MWh (US$6/MWh) when variable renewables (VRE) contributed up to 35 percent of annual electricity production, and less than €10/MWh (US$12/MWh) when VRE contribution is up to 45 percent.

see Becker report, for more statistics B5, B.5.2, p. 79

An assessment finds that new nuclear plants take 5–17 years longer to build than utility-scale solar or onshore wind power[77], so existing fossil-fueled plants emit far more CO_2 while awaiting substitution (for example 62–102 gCO_2/kWh more, equivalent to 11–18 percent of average U.S. grid carbon intensity).[78]

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[76] Becker Report, p. 77, 79.

[77] Mark Z. Jacobson, "Evaluation of Nuclear Power as a Proposed Solution to Global Warming, Air Pollution, and Energy Security", *Cambridge University Press*, 15 June 2019, see https://web.stanford.edu/group/efmh/jacobson/WWSBook/WWSBook./html.

[78] see Becker Report, p. 78.

Nuclear Energy Capacity thus costs many times more per kWh, rendering it very cost-inefficient. Investing in nuclear buys many times less climate mitigation measures per dollar than the major low-carbon competitors listed in Art.10 (1) a) Taxonomy Regulation. Therefore, NPP, in particular those included in Section 4.27 of Annex 1 to the SCDR, are highly cost-inefficient.

see Becker Report, p. 76, 79

Empiric evidence reaffirms this by findings that demonstrate markets and decision-makers favouring RE over nuclear. For instance, the world's most aggressive nuclear program, that of China, has been outperformed by China's wind power since 2013 and 2.2:1 by China's non–hydro renewable portfolio in 2018. The corresponding Indian factor is 3.1-fold. Similar trends occur in Europe as shown in Fig. 1

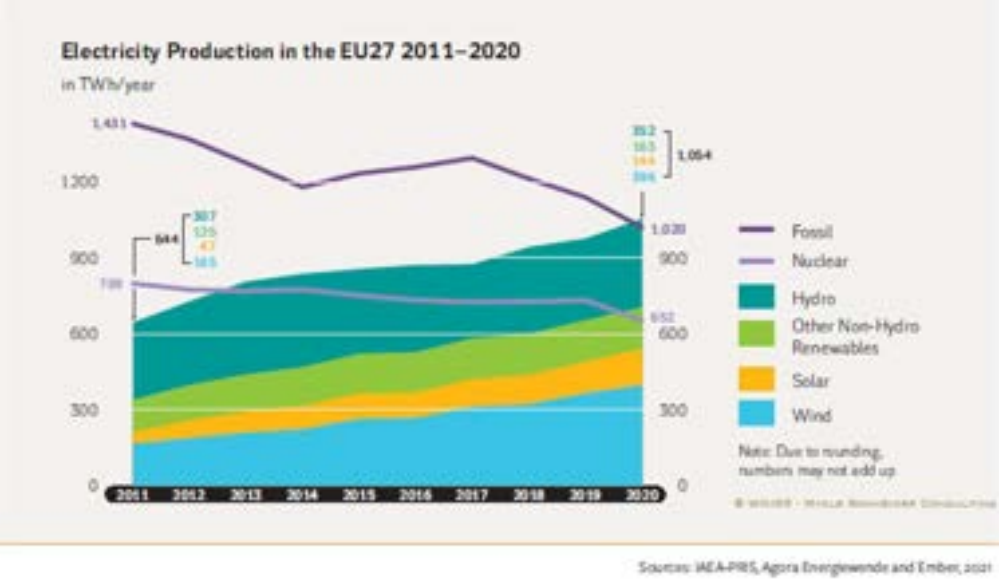

Figure 1: Electricity Generation in the EU27 by Fuel 2011-2020 (WNISR 2021)

Secondly, fuels from nuclear energy plants are not climate-efficient, as already set out above. Specific CO_2 emission of the full nuclear energy system found by a detailed analysis are summarized to amount to 117 ± 29 gCO2/kWh. Another recent study presented NPP's emissions at 78 to 178 g-CO_2/kWh. The comparable CO_2/kWh emission of energy production from wind (onshore) is only 4.8-8.6 gCO_2/kWh.

see Becker report, p. 67

As opposed to these facts, the JRC and therefore the Commission, which follows its opinion, fails to assess the underlying state of science. It does not take into account statistics and real values but simply defines a theoretical 100

gCO2e/kWh threshold. There is no critical assessment if this threshold can be upheld in reality. The JRC also only considers the 100 gCO2e/kWh value without the five-yearly decrease requirement as proposed (on the basis of sound science and observations) by the TEG and the Platform as the only science-based approach.[79] The Commission follows this opinion by regulating no decrease requirement in the SCDR, Annex I, 4.26-4.28.

Another example of shortened statements in the JRC Report and the resultant optimistic presentation of the life-cycle-based greenhouse gas emissions (and thus "efficiency") when using nuclear energy is Figure 3.2–6 of the JRC Report (Part A 3.2.2, p. 40). The JRC Report does not mention that in the corresponding report of the World Nuclear Association (WNA, 2011)[80] particularly for this figure many sensitivities and uncertainties are cited. The JRC ignores this. For instance, one important factor according to WNA is the different definition of "life cycle" in the publications consulted. Some of the publications included waste management and waste treatment in the life cycle, while others did not. Several calculations in these publications calculate higher values than 100 gCO2 /kWh than the JRC Report asserts.

This is also a severe error in the fact gathering process, raising serious doubts on the lawfulness of the nuclear energy inclusion in the SCDR. In particular, the facts gathered are not complete and the result is thus not conclusive (Art. 19(f) TR).

Thirdly, nuclear energy by no means produces fuels from "renewable or carbon-neutral" sources. The fuels used by nuclear plants are not renewable. They are not carbon-neutral, as shown in the foregoing paragraphs. The Commission admits the carbon-causing characteristic of nuclear plants by requiring only 100gCO2e/kWh – and not zero – for all plant types in 4.26-4.28.

Lastly, as already stated under supra (dd), there is no direct link between nuclear energy plants and fuel generation. Grid-connected fuel-plants cannot be identified as the source of fuel production as the grid is an intermediary to many consumers. So far, no plants in Europe are exclusively producing H2 or E-fuels. Considered the prices of a MWh of nuclear energy, this is also highly unrealistic for the future.

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[79] Platform, Response to Complementary Delegated Act, p. 3, TEG, final report, p. 205 ff, Becker report p. 66

[80] World Nuclear Association (WNA) (2011): Comparison of Lifecycle Greenhouse Gas Emissions of Various Electricity Generation Sources, July 2011, URL: *http://www.world-nuclear.org/uploadedFiles/org/WNA/Publications/Working_Group_Reports/comparison_of_lifecycle.pdf*, last consulted (5/27/22)

All of the above also applies to the other proposed nuclear facilities in 4.26 and 4.27 analogously. Regarding the relevant inconsistencies of small modular reactors (SMR), see Becker report, p. 49 ff.

The SCDR Annex I, 4.26-4.28 cannot be based on the criteria set out in Art. 10(1)(h).

(dd) Other criteria in Art. 10(1) Taxonomy regulation

The other criteria in Art. 10(1) point (d) to (h) describing mitigation activities are evidently not met.

- Lit. (d) is evidently not met as there is no conceivable way of using nuclear energy as a contribution to the switch to sustainably sourced renewable materials (regarding SCDR Annex I 4.26 to 4.28).
- Lit. (e) is not met regarding SCDR Annes I 4.26 to 4.28. This clause does not include any activity, which is just causal for a possible increase of the use of CCU with no inherent link to that activity. Using nuclear power for generating H2 or E-Fuels is already covered by lit. (h) (*lex specialis*), which is not met, either. CCS has no relation with nuclear energy.
- Nuclear Energy activities are evidently out of the scope of lit. (f) (strengthening land carbon sinks)

(ii) No indirect climate change mitigation activity

The Commission explicitly refers to Art. 10(2) in the chapeau of the Annexes on nuclear activities. According to Art. 10(1)(i) and Art. 10(2) Taxonomy Regulation, activities that are no direct climate change mitigation activities pursuant to Art. 10(1)(a) to (h) can potentially qualify as such a measure by contributing indirectly to climate change mitigation. Para 1 and para 2 of Art 10 are interlinked.

Those activities can be classified as *transitional* or *enabling*. "Transitional" is broader than and can refer to a wider set of activities than "enabling activities". Both categories – as the Taxonomy Regulation defines them – are not met by the promoted nuclear energy activities (Annex I and II, No. 4.26 to 4.28).

(iii) No transitional activity

Nuclear energy does not meet the requirements of Art. 10(2) Taxonomy Regulation. The main legal base for nuclear energy as proposed by the Commission does not legally apply. [81]

[81] see https://ec.europa.eu/finance/docs/level-2-measures/taxonomy-regulation-delegated-act-2022-631-annex-1_en.pdf p. 1 (2/3/22).

According to Art. 10(2); 10(1)(a) to (h) Taxonomy Regulation, an economic activity for which there is **no** technologically and economically feasible low-carbon **alternative** shall qualify as contributing substantially to climate change mitigation where it **supports the transition** to a climate-neutral economy consistent with a pathway to limit the temperature increase to 1,5 °C above pre-industrial levels, including by phasing out greenhouse gas emissions, in particular emissions from solid fossil fuels, **and where that activity**:

> (a) has greenhouse gas emission levels that correspond to the best performance in the sector or industry;
> (b) does not hamper the development and deployment of low-carbon alternatives; and
> (c) does not lead to a lock-in of carbon-intensive assets, considering the economic lifetime of those assets.

(Emphasis added)
Thus, a non-low carbon activity without any low-carbon alternative qualifies as a climate change mitigation, if it is itself consistent with a 1,5 °C-pathway and meets certain further requirements as foreseen by Article 10(2) (a) to (b).

Nuclear energy generation is not a low carbon activity, as set out above.

(aa) Legal term "transition"

The economic activity has to "support the *transition* to a climate-neutral economy" (emph. added). As per the wording of Art. 10(2) Taxonomy Regulation, activities that cannot reasonably be qualified as "transitional" are excluded by this entry criterion.

Art. 2(2) EU Climate Law provides legal details of a transition:[82] The EU economy shall be climate neutral at the latest in 2050. Art. 191(1) TFEU provides abstract directives for a pathway ("prudent and rational utilisation of natural resources" in order to promote "combating climate change"). This is consistent with Art. 2 Paris Agreement, as supplemented by Decision 1/CMA IV.21, 22 Glasgow Climate Pact.[83]

According to the Cambridge dictionary, a transition is

> *"a change from one form or type to another, or the process by which this happens"*[84]

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[82] As per established case law of the CJEU, legal terms shall be interpreted harmonically, if they are being used in related EU legislation unless the relevant legislation indicates a different interpretation.[82]

[83] The latter can be viewed under https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf (8/29/22).

[84] https://dictionary.cambridge.org/de/worterbuch/englisch/transition (8/29/22).

This definition is plausible against the background of climate change. The economy and all human induced behaviours must change from causing vast amounts of GHG to a state where total emissions are net zero. The process from the current carbon-intensive economy and society to a fully decarbonised one can be exactly described by a transition "to a climate-neutral economy", as the Taxonomy uses the term.

Thus, truly transitional activities, within the meaning of Art. 10(2), that by definition still cause GHG emissions, can only be such of a limited amount of lifetime or operation; respecting the pathway to the transitioned state.

Likewise, the aim of the Taxonomy Regulation,[85] specified in the corresponding requirements to the environmental goals (Art. 9 TR) and Art. 191 TFEU demand a transition to a sustainable economy.

Classifying nuclear activities as "transitional" is highly misleading and legally erroneous.

The activities included in 4.26-4.29 of the SCDR Annex are not intended to establish transitional activities for a limited amount of time until the transition is completed, but rather facilitate the development and deployment of nuclear energy plans that operate well into the second half of the 21st century, the phase of a carbon-neutral economy.

Those plants mostly do not contribute at all to the pathway to the mentioned carbon-neutral economy. For instance, NNP falling under Annex I No. 4.27 can receive a construction permit until 2045. A market entry in a highly optimistic scenario will therefore be 2055 to 2064.[86] Yet, the transition set out in the EU Climate Law and the Green Deal shall be completed in 2050. The Platform shares this opinion.[87] Moreover, the pollution of the environment caused by these plants during construction and operation will exist at least until the end of the 21st century. The corresponding nuclear waste will be a burden to thousands of future generations. The waste will heavily pollute the environment in the next 100.000 years. This contradicts nearly all environmental goals and is merely the opposite of sustainability.[88]

Important to note as well is that, during the long building or retrofitting time, the future capacity needs to be "reserved" in the market and grids (which is in fact demanded by operator, see ##). This reservation can only take place by non-flexible power generation, which are mostly existing coal plants. An assessment finds that new nuclear plants take 5–17 years longer to build than utility-scale

[85] see Rec. (1), (2), (6), (9) TR.
[86] see above ##, construction time in reality typically lasts longer than 10-19 years.
[87] Platform Response, p. 9.
[88] cf. Platform Response, p. 9.

solar or onshore wind power, so existing fossil-fuelled plants emit far more CO_2 while awaiting substitution (for example 62–102 gCO2/kWh more, equivalent to 11–18 percent of average U.S. grid carbon intensity).[89]

A detailed explanation and examples, why nuclear energy is "coming too late" for the transition, and therefore do not qualify as *transitional* are provided in

Becker report, A.12, p. 47 to 49.

This chapter concludes (emph. added):

> "To build new nuclear power plants is impractical as a short-term response to climate change. Planning and approvals can take a decade (particularly for nuclear 'newcomer' countries), and construction another decade."

Again, nuclear energy in the SCDR lacks of sufficient legal basis.

This is also the opinion of the Platform:

> *"To be consistent with the Climate DA, the "transitional" (as per Art. 10-2) labelling shall not apply to this."*[90]

The Commission did not address this criticism.

Overall it seems that the Commission fails to understand the Taxonomy's mechanism to achieve the purpose of the transitional activities correctly. The aim is to promote sustainable activities by pushing investments towards them. Even assuming that nuclear energy activities as set out in Annex I, 4.26-4.28 are needed for the transition (*quod non*), this does not automatically mean that the corresponding facilities and their operation need to promoted with the means of the Taxonomy. The Commission does not address this plausibly.

In fact, the decision of the Commission to include these nuclear energy activities is arbitrary. As there is no apparent or scientifically sound reason, which raies serious doubts of the lawfulness of the assessment. Respecting the procedural requirement of "gathering all necessary expertise" acc. to Art. 23(4) and the principle of "conclusive base in science" in Art. 19(1)(f) as well as an appropriate involvement of the Platform in the law making would very likely have led to a different result.

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[89] see Becker report, p. 76 f.

[90] "To be consistent with the Climate DA, the "transitional" (as per Art. 10-2) labelling shall not apply to this.", Platform, Response p. 23.

(bb) Consistent with a 1,5 °C pathway or scenario

A further strict criterion for transitional activities is "the transition to a climate-neutral economy consistent with a pathway to limit the temperature increase to 1,5 °C above preindustrial levels, including by phasing out greenhouse gas emissions" (emph. add.), Art. 10(2) first half-sentence (chapeau) Taxonomy Regulation.

In order to comply with this criterion, at least scientifically sound climate scenarios or pathways need to be assessed, a 1,5 °C aligned one chosen by scientific reasoning and potential activities measured against this. The Commission fails to demonstrate that the activities meet this criterion by not undertaking such efforts.

It is important to note that both the Commission and the TEG, as well as the Platform measure against a pathway that ensures the "well below 2 °C, preferably 1,5 °C" goal.[91] However, **the Taxonomy Regulation requires a 1,5 °C consistency** for a transitional activity (Art. 10(2) first half-sentence – 1,5 °C) in contrast to a direct mitigation activity (Art. 10(1) first half-sentence TR – "long term goal of the Paris agreement").

The TEG proposed a technology-agnostic threshold (100 gCO2e/kWh life cycle emissions), that declines every five years to zero in 2050. This threshold is based on scientific findings and on a pathway that aligns to the EU's own political targets for future emissions reduction.[92] The platform supports this approach as it finds that "this is the science-based threshold".[93]

The Commission does not address the requirement for a stricter climate pathway at all. Additionally, no conceivable pathway at all is followed by the 100 gCO2e/kWh criterion (SCDR Annex I, 4.26-4.28, sec. 2 "Additional criteria"). It does not contain a decrease of the 100 gCO2e/kWh threshold, allowing NPP to emit significantly GHG emissions indefinitely: Life cycle CO2 emissions of nuclear plants can be as high as high as 178 gCO2e/kWh (other studies naming 117 ± 29 gCO2e/kWh).[94] In addition, inclusion of NPP do not cause the phasing out of greenhouse gas emissions, as set out as a presumptive example of Art. 10(2) half-sentence 1 Taxonomy Regulation. The labelling of nuclear energy as GHG neutral therefore is also wrong. There has been no assessment of the current and future real world values to meet the CO_2 allocations of a of a 1,5 °C scenario, either.

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[91] this follows from the reduction values taken into consideration by the Platform, Response, (p. 8) and compared to Art. 2 and 4 EU Climate Law as well as explicitly stated from the TEG, Final Report, p. 206.

[92] see TEG final report p. 206 ff.

[93] see Platform, Response, p. 7.

[94] see Becker Report, p. 67.

Therefore, nuclear energy activities in the SCDR are not consistent with a 1,5 °C pathway or scenario. The Commission made material and procedural errors in the corresponding assessment. Applying the right standard and assessing climate scenarios could likely have led to not adopting nuclear energy in the SCDR.

(cc) Low-carbon alternatives available

According to Art. 10(2) subpara. 1 Taxonomy Regulation, the core criterion of a transitional activity is that there is no "no technologically and economically feasible low-carbon alternative" available.

The following review applies to all nuclear energy related activities (SCDR Annex I, 4.26-4.28) unless stated otherwise.

First, "low-carbon activities" such as nuclear energy generation activities cannot, by definition, fall under Art. 10(2) Taxonomy Regulation.

This flows from the systematic nexus to Art. 10(1) Taxonomy Regulation. The regulatory aim of this paragraph is to include environmental sustainable low-carbon-activities and to exclude non-sustainable non-low-carbon activities. This also follows from the clear wording and the historical legislative procedure (see above – mere climate-neutral or low-carbon energies were deliberately not included). Art. 10(1) Taxonomy regulation would be meaningless, if those activities could be declared as climate mitigation contributions via para. 2 of the same provision.

Secondly, the Commission assesses the criterion incorrectly by using an unlawful standard of law. Rather, there are technologically and economically feasible low-carbon alternatives available, that perform better (technologically and economically) than nuclear energy.

The Commission did not address this, despite having been made aware of it by the Platform before adopting the SCDR :

> *"Many other feasible low-carbon renewable alternatives as defined in the first Climate DA (4.5, 4.6, 4.7, 4.18, 4.19, 4.22, 4.23) exist and are market-ready today. . (...) low-carbon replacement options well exist in Europe in any case."*[95]

The Platform therefore summarizes:

> *"The main inconsistencies highlighted were around the misalignment with Articles 10(1) and 10(2) of the Taxonomy Regulation – relating to the climate change mitigation objective. The rationale behind these responses stems* ***from the evident***

[95] Platform response, p. 13, 33, see also already above ##

> ***other feasible alternative modes of energy production available,*** *based on the technology availability criteria used by the Platform. The first DA* [= first Climate Delegated Regulation] *defines such alternatives."(emph. add.)* [96]

The rejection of this criticism by the Commission does not address the core points of the expert's evaluation. The Commission asserts that the Platform effectively demands a standard that is set to a "most substantial contribution to the climate change mitigation […] or the least harm to the other environmental objectives"[97] This is not true, as it will shown below (see in particular ccc). But more importantly, this reasoning contradicts the wording of Art. 10(2) Taxonomy Regulation and the approach of the Platform. The standard set by law is that alternatives must be "economically and technologically" feasible. It is neither required that they have an advantage in these categories nor that they are available "at a sufficient scale", as the Commission interprets, thereby unlawfully adding more criteria to the Taxonomy Regulation in Art 10 (2) of the chapeau.[98] It is an objective criterion to be met: if there are such alternatives, the applicability of Art 10(2) ends.

In addition to the Platform's assessment, it is shown in

> **Becker report, B3.1 p. 70; B.4 p. 75 ff.**

that alternatives to Nuclear energy are available. According to the expert, 100% of the renewable energy scenarios are feasible and viable. They meet the energy needs of all citizens at all times while even being cost-competitive to fossil fuel-based systems, even if externalities such as global warming, water usage and environmental pollution are taken into account.

(aaa) Technical Alternatives

Regarding technical feasibility, the alternatives are not only feasible and viable, but even needed instead of Nuclear energy generation.

NB: The following considerations are made under the assumption that a NPP will enter the market now or in the near future. Yet, this will not happen much before 2050. Nuclear energy is therefore in fact disqualified from a methodologically sound feasibility comparison criterion, as a comparison requires a comparable basis. This does exits as NPP and retrofitted plants will enter the market too late.

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96 Platform response P. 13.

97 SCDR-draft, COM C(2022) 631 / 3 p. 5 f.

98 SCDR-draft, COM C(2022) 631 / 3 p. 9, see already above ##.

(α) Nuclear energy causes RE curtailment

As shown for fossil gas generation capacity below, less flexible energy generation techniques tend to cause renewable curtailment (see Aurora report, p. 10 as well as in detail below c)(4)(v)). technologies are needed in order to absorb demand exceeding energy (electricity) supply in high output phases. Consequently, flexible technologies can act as backup in low output power phases. In both cases, these technologies stabilize prices. Adding nuclear energy to the market not only replaces the renewable energy storage output in an energy scarcity phase but also replaces a large share of the renewable energy production in high output phases, as nuclear energy is the least flexible energy generation technology[99] and cannot adjust to the contribution of renewables.[100] This makes renewables less profitable, as the prices for renewable electricity drop lower in high output power phases and less revenue is generated in low output power phases.

This is confirmed by statements of NPP operators in practice: in 2009 EDF and EON called for a limit on the share of renewables, so that NPPs are not hindered. This clearly proves that investment in nuclear energy hampers investments in renewable energies. EON stressed that renewable energies should not be promoted "indefinitely". As a maximum limit for their share of total electricity generation, Eon recommended a maximum of 33 percent; EDF demands an even lower threshold of 20 to 25 percent of electricity production.

see Becker report, p. 73.

In fact, NPP operators accept high losses in profits due to the need for constant operation over 70% of rated output. In Germany, on several days the nuclear fleet is running close to 80% of rated output even though the spot price has fallen below *minus* 50 €/MWh – easily 80 €/MWh below the marginal operating cost of nuclear electricity.[101]

(β) Conceptional misunderstanding of the s.c. “base load”

As nuclear energy cannot provide a low-cost energy generation technology, arguments favouring this technology become scarce. Including nuclear energy in the SCDR may be based on a fundamentally misleading argument misunderstanding: that nuclear energy is needed as a “bridge technology”, serving a base load function.

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[99] Becker report, p. 71.
[100] see also Becker report, p. 70.
[101] see Becker report, p. 72.

Nuclear energy has no bridge function whatsoever, as it is in fact hampering the capacity increase in flexible sources of electricity and leads to renewable energy curtailment. This argument can also be rejected by showing that a base load function of power plants is a misconception.

see Becker report, B3, p. 69 ff.

Claims about nuclear being necessary towards "deep decarbonisation" are often based on misunderstandings about the energy market situation in Germany, specifically claiming that Germany has needed solid fossil fuel plants (coal) to replace nuclear. In fact, Germany replaced the power from the eight reactors closed in 2011 with new renewables in only three years and had less coal power in 2016 than in 2010.

see Becker report, p. 69.

Germany's nuclear phase-out is partly based on an understanding that baseload cannot flexibly accommodate fluctuating wind and solar, with nuclear being the least flexible of all conventional options. Those calling for a "balanced" mix of nuclear, wind, and solar assume that nuclear reactors can ramp up and down sufficiently to back up wind and solar (which they are not, see the next paragraphs). **Already a decade ago it was clarified that baseload is synonymous with inflexibility, which in turn is incompatible with fluctuating wind and solar power.** In Germany, this coined the term "Systemkonflikt" (system conflict) for the incompatibility of nuclear with wind and solar. This German insight has entered the international debate quite strongly in the past few years challenging the assumption that baseload capacity is necessary.

see Becker report, p. 71.

(γ) Nuclear power plants are highly inflexible because of material limits

As already stated, nuclear energy is highly inflexible. Attempts to make nuclear plants more flexible can only serve a very small degree of flexibility: it is limited to a small share of nominal power.[102] Further, this mode of operation can cause dangerous material deterioration.

As shown in the graph below, in the times of high-energy production by renewables, the electricity demand is exceeded. During such times, in order to not curtail renewables, NPP must be shut down entirely. This is technically not feasible.

[102] see Becker report, p. 71.

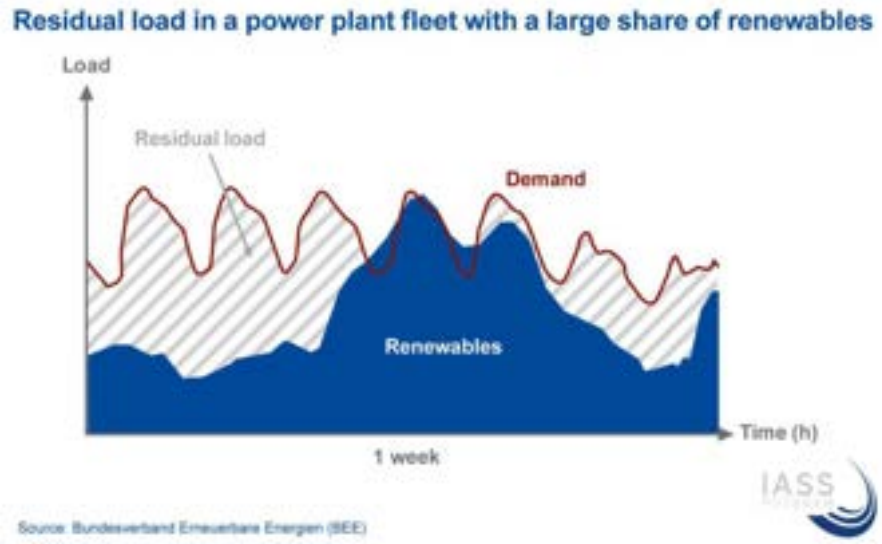

Figure 2: Residual load power plant fleet with a large share of renewables (Source: IASS based on data provided by the Bundesverband Erneuerbare Energien (BEE)). Source: Becker Report, p. 68.

But even when operating *NPP* in load following mode to a very slight degree – which has mostly insignificant effects to avoid RE curtailment – this causes severe technical disadvantages, because plant components are exposed to numerous thermal stress cycles. This leads to faster ageing and requires more sophisticated systems for reactor monitoring and control. An economic disadvantage of load following operation of NPP in a larger power range occurs if the plants are operated on reduced power.

For NPP that are under construction or planned, load following is suggested to be fully implemented. However, there is not much experience from operation practice. Investigations into the possible impacts of load following operation are limited and do not allow conclusions on the impacts in future. More research will be necessary until load following with sufficient capability can be implemented. Until now no Generation III reactor is operating in Europe.

With respect to NPP, responsiveness of currently available light water reactors (LWR) is challenged by neutron poisons – in particular the isotope xenon-135 (Xenon). It is produced directly and indirectly from fission in all reactors. The time periods, frequency of adjustment and response time required in load following are in direct conflict with the nature of xenon transients at NPP. For this reason, most NPP operators choose not to subject their facilities to load following operating modes.

see for details Becker report, p. 72

Furthermore, in recent years, increased oxide-thickness on the fuel rods has been detected at several nuclear power plants in Germany. To limit the corrosion

mechanism, among other measures a restriction on load-following operation has been established.

see Becker report, p. 73

(δ) No Security of Energy Supply through NPPs

Ignoring the issues pointed out above, the Commission seems to argue that NPP are still needed to ensure security of energy supply.

This is a false assumption. An illustrative example of this is the extreme drought and heat waves periods in the 2022 summer. France had to shut down or limit the power of a large amount of their 56 reactors, struggling with severe energy scarcity. Rivers were not carrying enough water and the water temperature was too high to cool the reactors safely. France was forced to import high amounts of energy from Germany with its high RE share. This is becoming even more dangerous to supply security in France, as 32 of the 58 reactors are currently (mid 2022) shut down, in some cases due to corrosion issues and small cracks in cement works,[103] albeit facing a winter of severe energy crunch. Irrespectively of this, the minister for energy transition has ordered to restart all of the reactors, putting an avoidable safety risk on the French population.[104]

(ε) SMR are evidently unfeasible

In No. 4.26.of the Annex, pre-commercial stages of advanced technologies to produce energy from nuclear processes are included.

Economical and technical feasible alternatives must exclude pre-commercial staged nuclear techniques at the outset. At a time when these might be scalable and technical operational, renewables will be so prevalent, that these techniques will simply be worthless and too late for any of the objectives of the Taxonomy and security of supply. The Commission fails to assess and recognise this fact.

The JRC Report does not discuss the fact that SMR are not yet ready for market introduction – nor does it cover the unresolved issues about safety, transportation, dismantling and disposal connected with this type of reactor.[105]

Even though Small Modular Reactors (SMR) concepts date back to developments in the 1950 and a wide variety of concepts and developments for SMRs exist worldwide, the vast majority of those projects are stuck at the conceptual level.[106]

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[103] https://www.lemonde.fr/en/economy/article/2022/08/26/edf-s-nuclear-fleet-receives-another-blow_5994861_19.html (9/4/22).

[104] https://www.france24.com/en/france/20220902-france-to-restart-all-nuclear-reactors-by-winter-amid-energy-crunch (9/4/22).

[105] see Becker report, p. 65 and 60.

[106] see Becker report, p. 49.

If a refurbished NPP cannot deliver a significant contribution to the transition as pointed out above, SMP are even more incapable to do so. It is not even predictable when a market entry can happen. Renewables cannot even be compared against this technology as no conclusive evidence on the technological and economic feasibility exists.

The incorrect assessment of the Contribution of SMR of the JRC and the Commission is outlined in

Becker Report, A.13, p. 50 to 55.

In conclusion, in the words of the World Nuclear Industry Status Report (WNISR), whatever the rationales for continuing and expanding nuclear power are, for climate protection, it has become counterproductive, and the new subsidies and decisions that operators demand would dramatically slow this decade's encouraging progress toward cheaper, faster, more climate-effective renewable solutions.[107]

(bbb) Economical Alternatives

Regarding economic feasibility, the Platform argues correctly that low carbon technologies are readily available at low cost.[108]

It has already been shown above that renewables are extremely more cost-efficient than nuclear energy (see above c) (2) (i) (ff). The LCOE of nuclear energy cannot compete with any other energy generation technology. This leads to the need of massive subsidies in all of those countries still using NPP as a major source of electricity.[109]

Investing in a new NPP leads to average economic losses during it lifetime of around five billion euros. The lack of economic efficiency goes hand in hand with a high risk of proliferation of weapons-grade materials and the release of radioactivity like in Chernobyl (1986) and Fukushima (2011).

Becker report p. 49

Even taking into account factors of flexibility, operating characteristics and base-load capability versus volatility, RE are much more economical viable. As calculated by the International Energy Agency (IEA), the "Value-adjusted Levelized Costs of Energy" (VALCOE) for the EU in 2019 comes to US$145/MWh for nuclear, US$60/MWh for solar photovoltaic, US$55/MWh for

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[107] see Becker report, p. 73 to 75.

[108] Platform, Response, p. 5 to fossil gas, however, this refers to non-nuclear alternatives as nuclear is not low cost.

[109] Which counteracts the Taxonomy aim – which is to gather *private* investments.

onshore wind and US$80/MWh for offshore wind. By 2040, the VALCOE for nuclear power is expected to be 115 US$/MWh, for PV US$65/MWh, for wind onshore US$60/MWh and for offshore wind only US$50/MWh.

On top of that, due to the limited load following .capabilities of nuclear, NPP in fact cause major losses in typical market situations. Fraunhofer ISE found that German nuclear reactors never fell below 70% of output regardless of how low prices got. Indeed, on several days one finds the nuclear fleet running closer to 80% of rated output even though the spot price has fallen below minus 50 €/MWh – easily 80 €/MWh below the marginal operating cost of nuclear.

see Becker report, p. 72

The Commission ignores all of the above and asserts that nuclear energy related economic activities are to be included in the Taxonomy because of "the absence of technologically and economically feasible low-carbon alternative at a sufficient scale to cover the energy demand in a continuous and reliable manner."[110]

(ccc) False factual assessment of Commission

In the foregoing paragraphs, the Applicants have shown that the Commission used the wrong legal standard and ignored the state of science on technical and economical feasibility.

As already cited above[111], **Section B.1 of the Becker report** shows that the JRC – and the Commission in following them – is estimating the development of cost and climate performance of nuclear energy in an unrealistically optimistic fashion and assesses the current contribution wrongly.

Moreover, the Commission failed to assess the role of technology-inherent issues that threaten energy supply security, that affect nuclear and do not apply to renewables.

see Becker report, B.6, p. 81 to 84

It follows from all of this, that, among others,

- the relevant procedural rules have not been complied with, as the JRC did not base its findings on conclusive science (Art. 19(1)(f) TR) – which was not critically evaluated by the Commission. Had the Commission done so,

[110] SCDR-draft, COM C(2022) 631 / 3 p. 9.
[111] ##

it would have likely reached a different outcome,[112] as the facts are pressing;

- the issues the Platform addressed were ignored, therefore not "all relevant data that had to be used" were adduced[113] and the Commission has not taken into account the key relevant factors outlined above;[114]
- in the light of the issues above, especially because of the detrimental impacts on renewables, the result of the Commission assessment is arbitrary and a misuse of power[115]
- due to these mistakes in the SCDR, serious doubts as to the lawfulness are arising.

(dd) Not the "Best performance"

According to Art. 10(2)(a) TR, an economic activity qualifying as a transitional activity must have "greenhouse gas emission levels that correspond to the best performance in the sector or industry;"

The Commission uses an interpretation of the wording "best performance in the sector or industry" in the first Climate Delegated Act that differs from the one in the SCDR. The "sector" in which the best performance is mandatory is now referring to specific technologies, e.g. a "gas sector" or a "nuclear sector", rather than the energy sector as a whole, where low carbon technologies are readily available at low cost.[116]

The whole sector and industry, not a specific "technology sector" or "industry", is intended to set the baseline for Art 10 (2). Any other interpretation enables any kind of "supplement" to the Taxonomy and could lead to the exclusion of all reasonable alternatives. This is what happened in the decision making leading to the adoption of the SCDR.

Renewables and alternative flexibility technologies are rejected as comparison, which is not convincing and missing the scope and content of the criterion in Art. 10(2)(a).

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[112] Marginal review error, s. Judgment of the Court of 29 October 1980, 218/78 et al., ECLI:EU:C:1980:248, para 47.

[113] Marginal review error, s. Groeben, von der/Schwarze/Jean-Christophe Puffer-Mariette, 7th ed. 2015, Regulation (EC) 1/2003 Art. 1, para. 27.

[114] Marginal review error, s. see Case C 27/76, United Brands v. Commission , EU:C:1978:22, paras. 252 256.

[115] Case 136/77, Racke v. Hauptzollamt Mainz. EU:C:1978:114, p. 1256

[116] Platform, Response, p. 5

Even if this was in line with the law, the Commission does not even identify the best available performance for nuclear energy activities.[117] Without a clear benchmark, no appropriate assessment is possible.

Using a correct standard, it becomes evident that the GHG emissions of nuclear energy are not the best in performance in the energy sector or power or heat industry (affecting Annex I 4.26-4.28).

Specific CO2 emission of the full nuclear energy system found by a detailed analysis are summarized to 117 ± 29 gCO2/kWh. Another recent study presented NPP's emissions of 78 to 178 g-CO_2/kWh. For comparison, the comparable CO_2/kWh emission of energy production from wind (onshore) is 4.8-8.6 gCO_2/kWh.

see in Detail: Becker report, p. 67

The JRC has incorrectly calculated the CO2 emissions stemming from nuclear energy activities, as set out already above.

see in Detail: Becker report, B.1.2, p. 65 ff.

Incorrectly, the TEG in its assessment omits using a life-cycle approach as mandated by Art. 19(1)(g) Taxonomy Regulation, so the very starting point, on which further assessments were made, is wrong.[118]

The TEG's assertion "Evidence on the potential substantial contribution of nuclear energy to climate mitigation objectives was extensive and clear" is not covered by the state of science, as already shown above. The TEG based this assertion on the outdated Assessment Report of the IPCC from 2014 that is outdated. The IPCC revokes its former opinion on nuclear and lists a set of five energy sources in the current sixth assessment report that are feasible for the transition. The IPCC remarks that this mix shall not be amended by inflexible energy sources. Nuclear is the most inflexible energy source.

Again, the JRC and therefore the Commission, which follows their opinion, fails to assess the underlying state of science. The requirement of best performance in the energy sector cannot and is not met by the nuclear activities included in the Annexes.

(ee) Hampering low-carbon alternatives

Nuclear energy hampers the development and deployment of low-carbon alternatives. This is prohibited by Art 10 (2) b) Taxonomy Regulation.

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[117] Platform, Response, p. 5
[118] TEG Final report, p. 209.

Low Carbon alternatives can only be transitional in that sense if the economic activity „does not hamper the development and deployment of low-carbon alternatives;“ Yet they do hamper the deployment of renewables and storage capacity as well as other flexible capacities, as was shown already above under **(aa) (*δ*) and (γ)**.

In brief, including nuclear energy into the Taxonomy lowers the WACC and LOCE. This leads to more capacity of nuclear energy.[119] More capacity of nuclear energy, which is the least flexible technology, prevents the transformation of the grid to a flexible one that is needed for decarbonisation and sustainable economy. It hampers renewables by constantly binding high capacity shares, therefore putting obstacles in the way to an effective use of renewables and lowering their revenues and investment attractiveness.

There is no discretion possible in this assessment. It is clear economic logic in the electricity markets.

(ff) Lock-in of assets with adverse climate impacts

Art. 10(2)(c) TR requires activities to avoid a lock-in of carbon-intensive assets, considering the economic lifetime of those assets. The lock-in or path-dependency is addressed directly and in numerous provisions indirectly in the SCDR. It has the function as one of the “safeguards” in order to prevent greenwashing.[120]

Lock-in is exactly to be expected with nuclear energy activities as included in the SCDR, Annex I. As it will be shown, nuclear plants of all kinds are carbon-intensive. They are also subject to a strong lock-in effect due to various factors. In fact, NPP are a textbook case of the lock-in effect in economics.

As already stated above under (c)(2)(i)(ff), life-cycle GHG emissions of NPP can emit from 78 to 178 gCO2e/kWh. This spans well over the technology-agnostic 100 gCO2e/kWh threshold that is proposed by TEG and the Platform and that the Commission has widely adopted in the first Climate Delegated Act as well as the SCDR. The GHG emissions of the promoted nuclear energy activities are therefore all well over this threshold. Also, the scientific-based approach[121] of the TEG and the Platform contains a requirement of constant decline of this threshold every five years until 2050 in order to decarbonise completely.

The Commission and the expert’s reports backing the Commission’s position contain no sufficient assessment of this issue. In contrast, it appears that the JRC

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[119] also see, for fossil gas, d)(4)(v)(aa) below.
[120] see COM commuincation to EP, COM(2020) 155 final, p. 3.
[121] see below ##.

projects these GHG emissions as actually staying at this level.[122] If in 2050 net zero emissions are reached, great efforts would be needed to compensate for the gross emissions of up to 178 gCO2e/kWh per NPP (see Becker report, p. 67). It is thus highly likely that all nuclear energy activities in Annex I would cause directly or indirectly far too much GHGs to reach the EU's climate targets in the future.

Nuclear energy therefore implies the installation and use of carbon-intensive assets that will be locked-in long term. In addition to Art 10(2), according to Art. 16 Taxonomy Regulation, lock-in of assets that undermine long-term environmental goals are prohibited (see below (iii)(bb)(bbb)).

The Becker report addresses the lock-in of nuclear energy in

Becker report, Section B.2 (p. 64 to 66).

The expert defines lock-in as the phenomenon that a technical and political system is difficult to bring onto a new path once it has developed a momentum of its own and is thus 'fixed or locked' on a certain path. Lock-in can also be described as "Path-dependency", which is defined below under d)(4)(vi).

The Becker report identifies four factors that cause a lock-in of nuclear energy assets: an economic, technological, ecological and a military-driven 'lock-in'.

The economic lock-in (B.2.1) stems from various reasons.

Due to the very high initial costs of building nuclear power plants, amortisation of these costs is only possible if the plants have a long operation time. For this reason, most operators applied for an extension of the lifetime of old nuclear power plants beyond the initially planned 30 to 40 years, up to 50, 60 or even 80 years. After those operational years, the capital intensive decommissioning process, that takes about 20 years, takes place. Furthermore the cost for interim and long term storage must be added. This leads to a very high economic pressure on the operator to increase profitability, creating a lock-in for a long time. In fact, there *will* be investments in nuclear if the plants provide sufficient guarantees to at least run until they are amortized, as the risk of a stranded asset is disincentivizing investors.

Technology and market lock-ins can also result from subsidised technologies with long lifetimes. If other technologies become more cost-efficient during the lifetime of a power plant, the market remains distorted for a considerable period of time. This is already the case for NPP. The costs of renewable energy are already significantly lower than the cost of nuclear energy. Projections show a

[122] see Becker report, p. 66.

further increase in the cost of NPPs and a further decrease in the cost of renewables.

The cost per kWh for small modular reactors (SMRs) will be even higher that those of other NPP or existing nuclear plants.

SMPs are incorrectly assessed by the JRC and Commission (see Becker report, A.13). It is merely speculative, that a market entry will ever happen. The risk of a stranded asset is extraordinarily high and the risk of creating inconsistent incentives for investing sustainably is imminent, and contrary to Art. 19(1)(i) Taxonomy Regulation. Promoting these through their Taxonomy inclusion (No. 4.26 of the Annex) is distorting the competition in the research market for energy solutions and this contravening Art. 19 (j) TR.

The technological 'lock-in' (B.2.2) arises from the inflexibility of nuclear plants.

Nuclear plants operate in a range of about 50 to 100% of their full power. They normally keep running on 100% power, because in the grid system it is easier to reduce wind power. The “must run” of nuclear power limits the options for RE. There are limits for NPPs in regulating energy output in lower electricity production (lower than 30%). To shut down a NPP and just restart it again is not technically possible. This significantly affects RE and the flexibility markets, as already described above.

The ecological lock-in refers to the environmental aspects of operation and waste storage. Besides material capital, society invests with other valuables into nuclear energy. A “self-perpetuating inertia created by nature-consuming energy systems that inhibits public and private efforts to adopt alternative energy technologies” is caused by the decision to develop, construct and operate a NPP (see Becker report, B.2.3).

The military-driven ‘lock-in’ (B.2.4) results from vertical nuclear proliferation. Studies indicate that a military with nuclear capabilities affect energy system developments and impede a nuclear phase-out. Emphasizing the mutually beneficial relationship between a state’s nuclear warhead stockpiles and its civil nuclear capabilities helps to explain nuclear incumbency and the future use of nuclear power in nuclear armed states. This risk is entirely ignored by the JRC, SCHEER and Art. 24 group as well as the Commission.

A detailed analysis underpinning the military induced lock-in of nuclear plants is given in

Becker report, A.15, p. 60-64.

The Platform report noticed this lack of assessment, too.[123]

Again: by not meeting this criterion ("no lock in"), the application of Art. 10(2) to "supplement" nuclear activities is legally impossible. It is an objective legal criterion in the higher ranking Taxonomy Regulation. No discretion is possible.

(iii) No enabling activity

The provision of Art. 10(1)(i) Taxonomy regulation is not met as the promoted nuclear activities (Annex I and II 4.26-4.28) are, by definition, not climate change mitigation *enabling* activities (Art. 10(1) lit (a) to (h) – see below [aa]). This applies to all nuclear energy related activities unless stated otherwise.

Additionally, in order to meet the requirements of such an enabling activity, Art. 16 Taxonomy regulation applies. Under Article 16 TR an enabling activity may not lead to a lock-in and must have a „substantial positive environmental impact, on the basis of life-cycle considerations". Those basic requirements are not met (see below [bb]).

Compared to "transitional" activities, which describe the way from one state to another or the result of this way (see above (aa)), "enablement" is term with a much narrower meaning. The Cambridge dictionary, defines "enable" as

> "to make someone able to do something, or to make something possible"[124]

Since Art. 16 Taxonomy Regulation, demands "direct" enabling, only those activities can fall under this provision that have a direct link to the enabled activities. Only one step in the causal chain can be accepted between the enabling and the enabled activity.

(aa) No direct enabling

The activities, that must be directly enabled by the SCDR Annex I nuclear energy technologies are provided in Art. 10(1) lit (a) to (h) Taxonomy Regulation.

(aaa) No enabling of renewable energy

The nuclear energy activities as described in SCDR Annex I 4.26-4.27 that use nuclear fuel as an energy carrier do not enable generating, transmitting, storing, distributing or using renewable energy, (Art. 10(1) lit (a).

The renewable energy activities that are defined by an exhaustive list (Art. 10(1)(a) TR, Art. 2(1) RED II) are energy generation technologies themselves.

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[123] Platform response, p. 14

[124]]https://dictionary.cambridge.org/dictionary/english/enable (8/31/22).

Nuclear energy is another, separate, generation technology. Renewables are hindered by Nuclear energy.

The only imaginable argument in this context is the (unscientific) concept that "baseload" is necessary to back renewables. This concept could fall under the "use" or "generation" of RE. However, it was already shown above (i)(bb), that this concept is not applicable. Nuclear energy was already not eligible as a transitional measure, that allows for a wider normative causality link than an enabling activity. Even if it is assumed that nuclear energy activities are ultimately needed for preventing energy scarcities and preventing power cuts, they are not as such enabling the generation or use of RE.

(bbb) No enabling of improving energy efficiency

The nuclear energy activities referred to in the Annexes I of the SCDR do not enable any economic activity which is improving energy efficiency, Art. 10(1) lit (b) TR.

Art. 2(17) Taxonomy regulation defines "energy efficiency" as the "more efficient use of energy at all stages of the energy chain from production to final consumption". There are no conceivable activities that would gain efficiency thanks to nuclear energy. The criteria in SCDR Annex I, 4.26-4.28 are not offering any guidance or benchmark in this regard, which would be required at a minimum. In contrast, the SCDR encompasses every kind of nuclear energy plants, from NPPs in speculative pre-commercial stages to old, inefficient plants in operation "for the purpose of extension" without consideration for their efficiency.

Additionally, as already stated above, the legal purpose of Art. 10(1)(a) Taxonomy Regulation makes it impossible to *add* an energy generation technologies to the TR.

(ccc) No enabling of increase of clean or climate-neutral mobility

Nuclear generation does not enable an increase of clean or climate-neutral mobility (Art. 10(1) point (c).

No Nuclear plants are conceivable that directly power mobility solutions. The plants feed-in the electricity into the grid, powering – amongst other plants – a great variety of electricity consumers. This is even more the case, when the fluctuation of other energy sources, mobility usage and other consuming activities are taken into account.

Moreover, nuclear energy would not enable clean mobility. The externalities of nuclear energy generation are the most severe pollutants imaginable. It would also not enable climate-neutral mobility, as the CO2 emissions of nuclear plants

can be as high as high as 178 gCO2e/kWh (other studies naming 117 ± 29 gCO2e/kWh).[125]

(ddd) No enabling of "establishing decarbonisation enabling energy infrastructure"

Nuclear Energy activities as laid down in SCDR Annex I, 4.26-4.28 do not enable the establishment of energy infrastructure required for enabling the decarbonisation of energy systems (Art. 10(1)(g)

(eee) No enabling of "producing clean and efficient fuels from renewable or carbon-neutral sources"

Art. 10(1)(h) TR allows including economic activities that substantially contribute climate change mitigation by producing clean and efficient fuels from renewable or carbon-neutral sources. Art. 10(1)(i) TR is not applicable, as was shown already supra (2)(i)(ff) . Fuels stemming from nuclear energy are neither clean, carbon-neutral nor „from renewable or carbon-neutral sources".

(fff) No enabling of other activities

The other criteria in Art. 10(1) point (d) to (h) describing mitigation activities are evidently not made possible by nuclear energy, thus Art. 10(1)(i) TR is not applicable in this context.

(bb) Art. 16 Taxonomy Regulation infringed

Art. 16 TR provides basic criteria that must be met in order to qualify an activity as enabling as per, Art. 10(1)(i) TR.

Those are not met, either.

(aaa) Lock-in with adverse environmental effects

Pursuant to Art. 16(a) TR, activities that lead to a lock-in of assets that undermine long-term environmental goals, considering the economic lifetime of those assets, cannot qualify as a Taxonomy-eligible activity.

It was shown above that nuclear energy is an economics textbook example of a lock-in effect and path dependency. This section refers back to the reasons given there to avoid duplication.

> **see already above (iii)(ff) and Becker report, B.2, B.3 (see also: A.2, A.3, A5-A7).**

These lock-in effects apply to all of the nuclear energy activities in 4.26-4.28, as they are inherent to any of the nuclear technologies.

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[125] see Becker Report, p. 67.

Adverse ecological effects that undermine long-term environmental goals occur due to nuclear energy activities in all Taxonomy categories (Art. 9) and on all scales.

As per the introduction of Art. 16 Taxonomy Regulation, it is assumed that „long-term environmental goals“ in lit. (a) in particular, but not limited to, refers to the environmental objectives in Art. 9 TR with the restriction to long-term ones. Short-term goals are excluded. Other long-time goals that find a legal base in EU law are eligible, too.

The environmental hazards that stem from nuclear energy related activities in SCDR Annex I 4.26 to 4.28 are thoroughly described in

Becker report, Part A (pp. 6 to 64)

Beyond that, all of the persisting significant environmental harms (DNSH infringements) that are described below cause adverse effects that undermine long-term environmental-goals. These are locked-in together with the nuclear energy activity.

see infra c)(5)

(bbb) Positive environmental impact

The activity must have a substantial positive environmental impact “on the basis of life-cycle considerations”.

A substantial positive environmental impact refers to a weighing of adverse and positive effects of a given activity. This follows from a systematic and purpose-led interpretation.

An enabling activity already necessarily needs to contribute substantially to “one or more of the environmental objectives set out in Article 9” (Art. 16). This contribution is leading, at best, to a substantial positive environmental impact. Albeit the “enabling” criterion is stressing the process and the “positive environmental impact” criterion is the result of an environmentally positive activity, both have a widely overlapping meaning. Both are strongly linked to each other, as the purpose of the provision strives to only include enabling activities that are as important as the activities referred to in Art. 10(1)(a) to (h) Taxonomy Regulation (direct mitigation, adaptation activities etc.).

Thus, the provision of Art. 16(b) TR would be widely meaningless, if both refer to exact the same scrutiny, except that there are more “positive environmental impacts” possible than “substantial contributions” to Art. 9 Taxonomy Regulation. As Art. 9 covers a wide range of environmental goals, it is unlikely that Art. 16(b) TR is limited to that meaning. After Rec. (40) TR, “an economic

activity should not qualify as environmentally sustainable if it causes more harm to the environment than the benefits it brings." This is suggesting a comparison or weighing. In fact, such a weighing is an effective provision to "safeguard"[126] the Taxonomy before enabling activities that have a substantial contribution, but the numerous, non-significantly harming adverse effects make the activity indefensible in sum.

Against this backdrop, no positive environmental impact can be identified in NPP.

The lower GHG emissions of nuclear energy, compared to fossil plants, are no eligible argument, as the side effects exclude nuclear energy from the decarbonized energy system that is needed to fulfil the transition. Nuclear energy cannibalizes RE and prevents the build-out of carbon-neutral flexibility technologies. During the development and construction phase, coal or fossil gas plants need to run as much as the capacity of the NPP is planned to deliver.

The argument of the lower use of land is a weak one against the background of the high risks. But in fact, the clear plant is affecting a wide portion of land and water, with its demand for cooling water, operational radiation and safety distances as a severe accident prevention. The lower amount of resources are neglectible, as these sites are not usable for other activities, in contrast to e.g. coal mines or milling areas.

The negative impacts, that are shown below under c)(5), heavily outweigh the positive impacts.

(3) Nuclear power as a climate change adaptation technology is far-fetched
According to the text of the SCDR, the delegated act is also based on Art. 3 (d), 11(3) a) TR, i.e. on the criterion of climate change adaptation (Art. 11(1) TR).

Nuclear power as a climate change adaptation technique is indefensible.

According to Art. 11(1) Taxonomy Regulation, a Taxonomy eligible adaptation activity must

(a) include adaptation solutions that either substantially reduce the risk of the adverse impact of the current climate and the expected future climate on that economic activity or substantially reduce that adverse impact, without increasing the risk of an adverse impact on people, nature or assets

or

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[126] Communication of COM to EP on Taxonomy, COM(2020) 155 final, 2018/0178 (COD), p. 3.

(b) provides adaptation solutions that, in addition to satisfying the conditions set out in Article 16, contribute substantially to preventing or reducing the risk of the adverse impact of the current climate and the expected future climate on people, nature or assets, without increasing the risk of an adverse impact on other people, nature or assets.

Adaptation measures can therefore be classified as activities *including* an adaption solution (see below [aa]) or as activities a *providing* an adaptation solution (bb).

Additional criteria arise from the purpose of the provision as well as from Art. 11(2) Taxonomy Regulation, specifically addressing material criteria.

(i) No "*adaptation including*" activity

(aa) No resilience building measures regarding the activity itself

The promoted nuclear activities in SCDR Annex II do not substantially reduce the risk of adverse impact of the current climate and the expected future climate on that economic activity.

In fact, no specific physical or non-physical activity is set out in SCDR Annex II, 4.26-4.28. Appendix A does not contain a significant specification as it lists the most abstract hyperonyms of known climate change consequences (CCC). Due to the vague wording, it is not reasonably predictable whether the nuclear activities described in Annex II will include any measures that reduce the impact of CCC on that activity itself.

The criteria set out regarding plant-threatening climate change consequences are described in abstract terms, much in the same manner as the wording of the relevant provisions in the Taxonomy Regulation. The Commission subdelegates finding technical assessment criteria mostly to private companies, that will be unable to impartially review their impact vulnerability. With this subdelegation, the Commission directly infringes Art. 10(3), 3(d) Taxonomy Regulation, as it is not supplementing anything in a practical manner, neither does it facilitate the verification of private parties' compliance. In contrast to this, for fossil gas as "mitigation activity", the Commission has implemented the necessary review of an Independent Third Party (see SCDR, Annex I, 4.29-4.31).

Annex II 4.29 can in no way focus on non-physical adaptation measures. It remains unclear, why the Commission implement highly detailed requirements in the first Climate Delegated Act, but refrained from doing so here (see e.g. Annex II: "3.5. Manufacture of energy efficiency equipment for buildings").

In contrast to this, in reality, climate change consequences to nuclear power plants are a first-degree threat to their safety and reliability. The main issues are described in the Becker report

under A.14, pp. 55 to 59

Beyond that, nuclear energy related activities as set out in Annex II are not sufficiently adaptable as to the minimum standard of Art. 11(1)(a) Var. 1, Art. 11(2)(a) TR. Pursuant to these provisions, especially *all* of the location-specific and context-specific adverse impact of climate change on the economic activity must be reduced at the very least.

See also Becker report for an in-depth examination of this issue under A.14, pp. 55 to 59, proving that this is not possible.

E*xisting nuclear energy plants* (4.28) were built and developed decades ago and are not designed to withstand the major climate change phenomena we are already currently witnessing. In addition, the sites were not chosen accordingly. Threats to *new nuclear plants* (4.26 and 4.27) are described in the Becker report under A.14.3 and A14.4. Issues especially regarding *advanced technologies* (4.26) are shown under A.13.2 and A13.3 of the Becker report.

Climate change affects nuclear energy production in several ways, including;

- The efficiency of nuclear power plants decreases with increasing temperature, lack of cooling water.
- Some sites may lose safety, with sea-level rise being of particular importance.
- Extreme weather events threaten the safety of NPPs additionally.

Selected risks described in the Becker report are:

- **Impact of flooding and storm** (see Becker report, A14.1, p. 55 ff). These are an *inevitable issue* for numerous existing NPP, e.g. as sea-level rise and floods is an absolute limiting factor for many plants close to the water
- **Impact of heat and cold waves,** e.g**.** the *inevitable loss of electricity production* may exceed 2% per degree Celsius. Cooling systems of nuclear energy plants are limited by physical laws, safety regulations and access to cold water. If the production is not lowered, the cooling is not sufficient and generates a high risk to humans and the environment (Becker report, p. 56f)
- **Extreme Weather Events** cause failures of the electric power supply. Nuclear plants themselves are dependent on a continuous electric power supply to operate, particularly for the instrumentation and safety systems, even when they are shut down. A typical nuclear power plant is connected to the electric grid. A natural disaster that disables the incoming power lines to a nuclear power station coupled with the failure of on-site emergency generators can result in severe accident (see Becker report, A14.3, p. 56).

- Regulatory measures to climate change adaptation lag dramatically behind the process of climate change, providing no minimum guarantee as a basis (see Becker report, A.14.5)

MRAZ et al. (2021)[127] examined the consequences at a general level with numerous case studies and concluded that:

> *"with our climate-impacted world now highly prone to fires, extreme storms and sea-level rises, nuclear energy is touted as a possible replacement for the burning of fossil fuels for energy. Yet scientific evidence and recent catastrophes call into question whether nuclear power could function safely in our warming world. Extreme weather events, fires, rising sea levels and warming water temperatures all increase the risk of nuclear accidents (...).*

This critical issue is not addressed by the Commission or any of the expert groups, which also infringes the standards set in Art. 19(f) TR, as there is no conclusive evidence on this topic. What is more, the mandatory precautionary principle was not applied, which must have led to the disqualification of nuclear energy as an adaptation measures.

(bb) No impact reduction of climate change consequences on others

As the climate change consequences related characteristics of nuclear energy activities in Annex II are mostly negative as stated above (aaa), no substantial benefit is identifiable. As it will be shown below in the DNSH section, a great variety of adverse impacts on people, nature or assets occurs due to the implications of nuclear energy activities.

The only theoretical argument, that one might assert to argue for an adaptation benefit to others could be an alleged contribution to security of energy supply through NPP, as climate change consequence are threatening supply security (especially extreme weather events). Yet, NPP do not stabilise supply if they themselves are vulnerable to climate consequences.

There is no substantiation of this criterion in the SCDR or the materials.

(cc) No significant focus on adaptation

The present case illustrates that the term "including" in Art. 11(1) cannot meaningfully refer to any kind of measures, including adaptation mainstreaming measures.

[127] see Becker report for full references.

A *substantial contribution* is needed, which translates to a substantial, physical adaptation measure. These are fundamentally different activities than the nuclear energy activities in the SCDR. Otherwise, this clause would be a door-opener to a great variety of economic activities, that do include some ostensible adaptation measures, but have no further link to environmental sustainability or could even harm the environmental goals.

In the field of nuclear energy, examples of an adaptation *including* measure could be the construction of a security wall of a NPP with smart flood detection and pumping systems as the main activity. Building a nuclear power plant with such a system is not a climate change adaptation measure, just because it has elements of climate change adaptation. This is case here, as no independent assessment is made, what climate change consequence response measures might needed. This applies even more to the mere research process on nuclear energy activities (4.26 Annex I, II).

(ii) No adaptation providing activity

Nuclear energy would fall under the adaptation clause in Art. 11(1) TR, if the activity provides adaptation solutions that, in addition to satisfying the conditions set out in Article 16, contribute substantially to preventing or reducing the risk of the adverse impact of the current climate and the expected future climate on people, nature or assets, without increasing the risk of an adverse impact on other people, nature or assets.

Nuclear energy is excluded form this clause, as it *increases* the risk of an adverse impact on other people, nature or assets dramatically (as already shown above und (i). The risks related to nuclear energy activities are shown in detail below under (5) DNSH).

Nuclear energy activities in the SCDR only provide power or heat (including power for H2 generation). The delivery of energy itself does not provide climate change adaptation solutions.

The requirements of Art. 16 Taxonomy Regulation are not fulfilled.

(iii) Procedural and material errors

Neither the JRC, the Art. 31 EURATOM report or the SCHEER Report assess any issue or impacts regarding climate change adaptation. This might explain why the Commission does not provide any concrete TSC in the Annex II but remains vague and repeats the normative content of the Taxonomy Regulation. The prescribed compliance with the Euratom legal framework is not sufficient to reduce the inherent known risks of (old) nuclear energy plants and especially those regarding climate change adaptation.

see A.14.4 and A.14.5 of the Becker report, A.3.5.

Especially the WENRA and IAEA guidelines as well as the Euratom Nuclear Safety Directive (Directive Euratom 2009/71) do not take into account climate change consequences or adaptation

Becker report, p. 58-59.

Against the background of this section (3), the complete lack of scientific advice and created *fait accomplis* Art. 19(1)(f) is infringed. As a minimum measure, at least delaying the adoption of nuclear as an adaptation activity pursuant to the precautionary principle would have been mandatory.

The pertinent procedural rules established by CJEU case law are also not complied with. The greater the margin of judgement or discretion granted to the authorities, the more important it is to respect the guarantees afforded by the Community legal order.[128] In detail, these are the necessity of the representation of scientific expertise, the hearing of the parties concerned and a sufficient statement of reasons within the meaning of Art. 296 TFEU.[129]

The first and the last criteria are evidently infringed here. *The limits of the procedural appreciation* is exceeded, if it can be proven that the contested decision could have had a different content without the procedural violation.[130] This is also the case here: since there is strong evidence indicating inevitable vulnerability of nuclear energy activities regarding CCC, and no conclusive science is presented by the Commission, the legal standard is not met.[131] Given also that a great number of adverse impacts on nature, people and assets can be identified, compliance with those procedural rules would have led at least to the application of the precautionary principle.

Therefore, the whole SCDR Annex II regarding climate change consequences is without legal basis and thus to be revoked .

(4) No other supporting environmental goals are fitting

The SCDR, Annex I and II are not covered by the legal bases of other environmental goals laid down in Art. 9, 12(2), 13(2), 14(2) or 15(2) TR.

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[128] Grabitz/Hilf/Nettesheim/Mayer, 75. EL January 2022, TEU Art. 19, para. 71

[129] Grabitz/Hilf/Nettesheim/Tietje, 75. EL January 2022, TFEU Art. 114, para.148.

[130] Judgment of the Court of 29 October 1980, 218/78 et al., ECLI:EU:C:1980:248, para 47.

[131] This is also critizised by SCHEER, see in detail e.g. Becker report, A.2.4, A.3.5, A.7.3, A.14.5 (p. 23). Article 8b(1), point (a) of Directive 2009/71/Euratom is referring to extreme weather events, but these are not climate change related extreme weather events, which are stronger in frequency, intensity and duration; see e.g. IAEA, p. https://www-pub.iaea.org/MTCD/Publications/PDF/P1847_web.pdf p. 35. (9/8/22)

Those are:

- the sustainable use and protection of water and marine resources;
- the transition to a circular economy;
- pollution prevention and control and
- the protection and restoration of biodiversity and ecosystems.

The only link that the EC tried to establish between nuclear energy activities and these goals was related to “advanced technologies (...) with minimal waste”. However, the inconclusive concept of “closed fuel cycle” NPP (see Art. 13(1)(g) Taxonomy Regulation) makes this link irrelevant.

The reprocessing of spent nuclear fuel (JRC Report, Part A 3.3.5, p. 105ff) is presented in the JRC Report as an opportunity for achieving a so-called closed fuel cycle. This, however, has been in experimental status for over 50 years, the underlying technologies still do not exist. Evidence that the concept is not viable is found in

Becker report, A.3, pp. 19 to 24.

Similar deliberations apply to “advanced technologies (...) with minimal waste” which are besides of the mentioned above small modular reactors (SME), see

Becker report, A.14

(5) Compliance with the DNSH requirement (Art. 17)

In line with the objectives set out in its Articles 1 and 9, the Taxonomy Regulation seeks to guarantee an integrated view on any economic activities that might receive the label “environmentally sustainable“. This is achieved by establishing the “do not cause significant harm” (DNSH) principle in Art 17, which contains criteria to implement the principle into concrete requirements. Art. 17 provides a scope of DNSH in order to facilitate its implementation (Art. 19(1)(k) TR)).

According to Art. 3(b), (d), 10(3)(b), 11(2)(b) and 17 Taxonomy Regulation, when setting out TSC, the Commission must supplement the provisions of Art. 17 Taxonomy Regulation by setting out additional TSC to ensure the economic activities do not cause significant harm.

It is demonstrated here that in both Annexes, the SCDR fails to provide TSC for nuclear activities that would be compliant with the stipulations in Art. 17 Taxonomy Regulation. The obvious reason for this is – as should be common knowledge – that nuclear energy cannot objectively fulfil the requirements of the

DNSH principle regarding the relevant environmental goals due to severe technology-related hazards.

Two legal errors are made: failing to provide sufficient supplementation and including nuclear energy as a whole, as it is per se incompatible with the environmental goals.

(i) Minimum standard

The margin of discretion granted to the Commission when adopting TSC is narrow, in particular regarding the DNSH supplementation. According to Art. 19(1)(b) Taxonomy Regulation, the TSC, which the Commission intends to establish, must set out the minimum standard for the DNSH principle regarding each environmental objective ("shall ... specify the minimum requirements ... for the short and long term impacts").

This can be misunderstood as the minimum tolerable protection level, and the wording of the Commission's reasoning indicates that the institution incurred in this misunderstanding.[132] Yet, the Taxonomy Regulation in fact aims at a high protection level as its goal is sustainability. Following primary law (Article 3(3) and 191(2) TFEU), a high standard of protection must be met by every EU act. This also follows from the Recitals 1 and 6 Taxonomy regulation, which require "a high level of protection and the improvement of the quality of the environment". Legal standards that merely prevent the most intolerable threats would not comply with this standard.

Furthermore, it is the fundamental goal of the Taxonomy to prevent greenwashing to increase credibility in order to effectively push capital flows towards sustainable activities. It would be inconsistent with the aforementioned goal if only the minimum standards already existing in mandatory law (i.e. environmental directives or EURATOM rules) would be required to be met by the activities included in the Taxonomy.
Considering this, the Commission acts with a strong limitation in setting the minimum standard under Art. 17 as the DNSH standards are higher than existing EU law and the Commission must supplement and raise rather than adjust or lower standards. Further criteria in the Taxonomy Regulation confirm this, as e.g. Art. 19(1)(f) TR sets out the requirement of the application of the precautionary principle as far as there is a lack of conclusive scientific evidence.

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(ii) Significant Harm to climate change mitigation

For the purposes of point (b) of Article 3, taking into account the life cycle of the products and services provided by an economic activity, including evidence from

[132] see SCDR-draft COM (2022) 631/3, pp. 5-6.

existing life-cycle assessments, an economic activity shall be considered to significantly harm climate change mitigation, where that activity leads to significant greenhouse gas emissions.

The TEG and Platform proposed a threshold for climate change mitigation in the context of energy generation that establishes a threshold of 100 gCO2e/kWh (life cycle emissions) and declines every 5 years to reach zero in 2050. They also proposed a 270 gCO2e/kWh lifecycle emissions threshold as limit to non-significantly harming CO2 emissions.

Two insights follow from these thresholds:

The life cycle emissions must be declining over time; not doing so and still maintaining the same emission level until 2050 determines in fact a multiplication of the "allowed" CO2 emissions. This must be considered as a significant harm.

The life cycle emissions must be taken into account. This is explicitly required by Art. 17 first half-sentence and Art. 19 (g) Taxonomy Regulation. The direct output power threshold is meaningless if a magnitude more of GHG is emitted e.g. in the upstream value chain, that is directly dependent of the main activity

see also Becker report, p. 67

This is even more true for nuclear generation activities, as the operation itself causes a fraction of its overall GHG emissions.

In the following analysis, all nuclear activities in Annex I and II of the SCDR are addressed at the same time, unless stated otherwise.

(aa) No declining threshold adopted

The emission of nuclear energy activities in the SCDR are not contained within a declining threshold. For both the Annex I and II nuclear activities it is in effect accepted - especially in the years before 2050 - that the low GHG threshold is exceeded by far. The Commission does not acknowledge and assess this.

(bb) No life cycle emissions considered

Thresholds in the Annexes do not cover the entire life cycle emissions, acting directly *contra legem.* In effect, operators could use all forms of fossil fuel activities for e.g. mining, milling, transport, operation and decommissioning with no upper limit (see Annex II, 4.26-4.28, DNSH (1); "direct GHG emissions"). This evidently causes significant GHG emissions.

(cc) Incorrect assessment of the JRC

As already stated above, the JRC incorrectly calculated the GHG emissions of NPP by misrepresenting the findings in the scientific literature (see Becker report, p. 67). Several studies show higher values than those the JRC is assuming.

After the TEG incorrectly assumed that "the potential substantial contribution of nuclear energy to climate mitigation objectives was extensive and clear. The potential role of nuclear energy in low carbon energy supply is well documented,"[133] none of the expert groups tasked by the Commission examined this finding. In particular the JRC simply repeated this "finding" of the TEG,[134] which is based only on two sources, one of them an old IPCC assessment report, that is outdated. The IPCC revokes its former opinion on nuclear and lists a set of five energy sources in the current sixth assessment report that are feasible for the transition. The IPCC remarks that this mix shall not be amended by inflexible energy sources. Nuclear is the most inflexible energy source.

If the Commission did base its assessment on these incorrect, inconclusive findings, as a consequential error it did not assess a potential significant harm to climate change mitigation.

(dd) Opportunity GHG costs

It was shown above that the indirect energy market effects of increasing nuclear energy capacity over time are severely hampering renewables and thus leading to significant indirect greenhouse gases. This causality link of „opportunity GHG costs" is covered by the requirement of Art. 17(1)(a) Taxonomy Regulation due to the wording and the purpose of the provision. In the energy system context, whose components are highly interrelated which each other, supporting one technology necessarily causes system implications. In the case of nuclear energy these are:

- Curtailment of renewables and flexibility technologies due to the inflexibility and inherent cost effects of nuclear energy technologies, leading inevitably to higher GHG emissions, as nuclear energy causes more than 100 gCO2/kWh and RE near no emissions.
- During construction time, fossil fuelled plants need to deliver the „reserved" capacity of the nuclear plant, which is an extraordinarily high amount leading e.g. to additional 62 to 102 gCO_2/kWh (US energy market)[135]
- No TSC on life cycle GHG emissions implicitly assist in the use of the rest CO_2 budget, making it harder for other technologies to be established on the market

For details and further arguments, see above **c)(2)(iii).**

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[133] TEG Final report, p. 210.
[134] JRC report, p. 17.
[135] Becker report, p. 76 f.

(iii) Significant harm to climate change adaptation

According to Art. 17(1)(b) Taxonomy Regulation, significant harm to climate change adaptation is assumed where that activity leads to *an increased adverse impact* of the current climate and the expected future climate, on the activity itself or on people, nature or assets.

The prerequisites of ensuring DNHS with regard to adaptation are therefore:

- The activity causes increased adverse impacts over and above GHG emissions (Art. 17(1)(b) Var. 1 ("an increased" impact);
- The Commission has set out context-specific (Art. 11(2)(a)) requirements in TSC to prevent any significant harm;
- The activity is at least neutral with the regard to the environmental goals, as increased climate change consequence impact is excluded, *any* increased negative impact must be ruled out;
- or the Commission has set out context-specific requirements in TSC that prevent an increase of impact.

(aa) Inevitable climate change consequences / vulnerability

In the operational phase, nuclear energy technologies has certain features that can not be adapted to climate change, as they are physical core characteristics of the technology. NPP are therefore potentially non-adaptable to climate change consequences (CCC).

These impacts on the activity itself already mean that nuclear energy cannot qualify as an activity *contributing* to climate change mitigation; this was already partly **set out above under (3)(aa)(aaa), p. 83**.

Additional aspects are listed below:

- NPP are dependent on a continuous supply of cooling water. This supply can be interrupted due to extreme events (extreme heat or cold, erosion or flooding)
- Extreme heat periods and droughts dry up rivers. E.g. some of France's nuclear plants had to be shut down in the last years, some of them had to throttle their load[136] and for some of them regulatory limit values for the cooling water were set out.[137] These technology-inherent issues are becoming more severe with increasing global warming. (see Becker report, p. 80 ff.)

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[136] https://www.zeit.de/politik/ausland/2018-08/atomkraftwerk-edf-frankreich-abschalten-energiekonzern (9/8/22)

[137] https://www.srf.ch/news/international/drohende-energieknappheit-atomkraftwerke-frankreich-erlaesst-sonderregelung-fuer-kuehlwasser

- As most of EU's nuclear energy plants were built and developed decades ago[138] they were not designed to withstand the major climate change phenomena we are currently witnessing. In addition, the sites were not chosen with this factor in mind (see Becker report, p. 54-55). NPP cannot change their sites. Many NPP are built on coastlines where seawater is used as cooling water. Flooding is a CCC that could lead to nuclear disaster like in Fukushima.[139] In particular regarding retrofitting of plants (Annex I, II, 4.28), those threats are inevitable and especially at sea-sites or rivers not preventable, as flood safety walls are limited in their height and are no sufficient measure in case of an earthquake. (c.f. Becker report, p. 54-55). At the very least, adaptation measures should have been specifically named in the Annex I/II for each nuclear energy activity. The legal standard does not in fact act as a safeguard, as the mentioned legal acts and guidelines in Annex I/II 4.26-4.2 do not contain specific adaptation requirements[140]

- Importantly, the criteria fail to address the unsolved issue of excluding a station blackout leading to a severe accident as electricity is needed for running the cooling system (see Becker report, A.14.3, p. 58)

- The Becker report, A.3.4, examines the problem of dismantling NPPs. Dismantling can take up to 20 years. Even for existing plants (regarding Annex I/II, 4.28), given a non-defensible CCC threat (like soil erosion) occurs during the next 20 years, there is not enough time to dismantle them to prevent an accident. As several CCC impacts are already striking today, this is in fact likely.

(bb) Insufficient assessment

As already stated above, neither the Commission, nor the JRC, SCHEER, and Art. 31 groups have examined the DNSH principle regarding climate change adaptation of nuclear plants. This be the result of the inconclusive finding of the TEG regarding the role of nuclear in climate change adaptation, that has not been critically reviewed.[141]
Art. 19 sets a standard whereby rules only on the basis of conclusive science. The issues mentioned above should at least have been addressed. Moreover, as the threshold is set to cause "no significant harm" and not only to avoid "disastrous

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[138] see IAEA, Adapting the Energy sector, p. 23: „Existing nuclear power plants may become vulnerable to EWEs [extreme weather events] and the siting and design of future nuclear power plants need to account for a changing climate."

[139] see IAEA, Adapting the Energy sector, p. 24: „Although the accident at the Fukushima Daiichi nuclear power plant was caused by a tsunami, which is unrelated to climate change, this tragic event underscores the vulnerability of nuclear power plants to extreme flooding."

[140] see Fn. 131

[141] s. supra

harm", the Commission should have been expected to address climate change adaptation issues threatening the activity (NPP) itself.

The whole set of necessary considerations is outlined in

Becker report, A.14

(cc) No increase of adverse impact on other assets, people, and nature

- As pointed out above, an inevitable CCC impact to nuclear energy plants is the heating of cooling water. As droughts also cause less water run off in rivers, the hotter cooling water becomes, the ratio of hot water becomes larger in the streams. This increases the impact of CCC adverse impacts on the river ecosystems and increases the need of adaptation.

  The same is true for other assets, as the heat related outages of threaten energy security supply. In summer of 2022, as about half of the French reactors had to be shut down due to age related issues, shutting down more reactors due to the heatwave and draught would have put France in a severe energy scarcity. More details are shown under B.6.2 of the Becker report. This risk to the energy supply security are an adverse impact to other assets, that must increase their adaptation efforts (see Becker report, p. 83). Unplanned outages of NPP due to excessively high-temperature water (see Becker report chapter B.6) threaten the energy security and the costs per kWh further.

- A station blackout as described above due to CCC cause a great threat to nature, people and other assets. Using a 1,5 °C scenario for assessing the CCC on nuclear plants also leads to a great threat to nature, people and other assets and a severe accident . For example, the low-lying marshlands that surround the proposed Sizewell C NPP in the UK would be affected by a climate change scenario that fails to limit global warming to 1.5 degrees (see Becker report, p. 58).

- The efficiency of nuclear power plants decreases with increasing temperature, so their costs pro kWh will further increase (see Becker report, p. 57). This increases adaptation needs of others (energy is more expensive, increasing energy scarcity, increasing need for more energy sources).

- NPP were built and developed decades ago and are not designed to withstand the major climate change phenomena we are currently witnessing. With the increasing risks of severe accidents due to CCC, potentially affected people or valuable assets have to be moved away from potentially affected sites to avoid severe accident (like rivers, near area etc.), creating additional adaptation needs

- Under A.2.2.1 of the Becker report, inappropriate measures and evaluations of dam Failures regarding mining and milling sites are pointed out. In case of floodings, the threats of open mines and milling areas affect other assets, people and nature, as it has already been the case in the USA.

Adverse impacts on others resulting from a severe accident are pointed out in

Becker report, A.1.

(dd) Lack of assessment and procedural issues

Similar to what was said under (bbb), the foregoing issues are the most important ones that have not been addressed. In addition, the following issues should have been assessed (properly) by the Commission order to comply with the legal standard:

- The Commission and JRC underestimate the risk of operation of NPP. If those operational risk are not correctly assessed, the risks related to CCC adverse impact cannot be correctly assessed in turn (**see Becker report, A.3.3**)
- There is no practical experience with lifetime extensions of NPP. Even though the oldest NPP in Europe is 51 years old, contrary to what is asserted by the JRC, there is no evidence on lifetime extension, in particular up to 80 years. Consequently, there is no evidence on age-CCC-interrelated effects. **See Becker report, A.3.3.2**.
- In fact, increasing risks of Operation with Lifetime Extension of NPP arise. These can be amplified by CCC adverse impacts. **See Becker report, A.3.3.2 and A.11.**
- Regarding the interim storage of radioactive waste, there are no CCC considerations or TSC criteria set out. In contrast to the JRC‘s opinion this issue has ot been deduced (JRC Report, Part A 4.2). **See Becker report, A.5**
- The assessment of Long-term or extended interim storage of Spent Fuel regarding CCC is insufficient. see Becker report, A.5.1
- The JRC Report does not adequately consider the fact that no successful, deep geological disposal of high-level radioactive waste, including the permanent seal, has yet been introduced anywhere in the world. This includes in particular, that no CCC safe repository is found or the prerequisites thoroughly assessed. **See Becker report, p. 32**
- Many nuclear installations, especially new NNP and SMP (4.26 and 4.27), are not backed by empiric evidence. SMP are in an experimental phase. It is not foreseeable which impacts they will have during their lifetime. It is not possible to render the required empirical lifetime assessment underpinned with conclusive scientific evidence (Art. 17 half-sentence 1, Art. 19(f) TR), **see Becker report, p. 52**).

(ee) Erroneous link between Annex I, II, and Appendix A

The Commission creates a contradiction not solvable by interpretation in setting out the Annex II adaptation *contribution* requirements as the adaptation *DNSH* criteria of Annex I, even though they contain exactly the same economic activities. This effectively leads to a combined mitigation-adaptation activity, that is not covered by the legal basis.

Also, in Annex II regarding the adaptation requirements, the general criteria of Appendix A (to the FCDR) are repeated word by word. Thus, in fact the adaptation criteria of Annex II contain no specific requirements, as already criticised above. As pointed out above as well, the SCDR does not contain sufficient adaptation provisions and has a big lag in transformation and monitoring (as also criticised by SCHEER),

see Becker report, A.2.4, A.3.5, A.14.5, see also supra Fn. 131

(ff) Minimum standard

The minimum standards are not complied with, as set out above under (i). This is a severe legal error especially in case of the adaptation objective – Annex II, 4.26 to 4.28 qualifies those nuclear energy related activities as environmentally sustainable, even if no difference to other activities is ensured.

Regarding the activities in Annex I, 4.26 to 4.28, the corresponding TSC do not supplement the DNSH adaptation criterion, as no minimum standard is set out at all. Those TSC therefore do not pass the high review standards that were pointed out above under II.

(iv) Water and marine sources

According to Art. 10(3)(b), 11 (3)(b), 17 (1)(3) Taxonomy Regulation, the DNSH principle is violated, if the activity harms the sustainable use and protection of water and marine resources, where that activity is **detrimental to the good status** or the good ecological potential of bodies of water, including surface water and groundwater or to the good environmental status of marine waters.

The wording follows the Water Framework Directive (WFD)[142] and the Marine Strategy Framework Directive (MSFD)[143]. The definition of marine waters, surface water, groundwater, the good environmental status, the good status and the good ecological potential are both defined by referrals to the aforementioned directives (Art. 2 point 18 to 23 Taxonomy regulation). Therefore the legal standard of "no deterioration" can be taken as a starting point (which is not equivalent to the minimum standard, as stated under above (i))

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[142] Directive 2000/60/EC.
[143] Directive 2008/56/EC.

According to this basic legal standard, harm to the water bodies is imposed – simplified –, if a concrete project causes the lowering of quality in one of the quality categories in the Annex 5 of the WFD as well as Art. 9 and Annex I and III of the MSFD. This standard also imposes the duty on Member states to aim for optimization and reaching the environmental goals in the respective water bodies in the long-term (through management planning and overarching measures). Under certain circumstances Member States are allowed to make exceptions to the time or stringency of these goals.

Given the aim of the Taxonomy regulation to raise standards, the minimum standard should be met if concrete projects do not need an exception under the WFD. It would be contraindicative, if the aim of improving the water quality is imposed by the WFD, but contravened by the Taxonomy regulation.

(aa) Lack of TSC regarding the status of water and marine resources

The Commission did not set out any TSC that define the DNSH principle regarding water and marine resources. This is arbitrary since the TSC flow largely from EU environmental law and since nuclear installations have - due to cooling requirements and discharge of radiation - a rather severe impact on water bodies.

Regarding the deterioration principle of water bodies, the ECJ ruled in 2015 that the obligation to prevent deterioration of the status of bodies of surface water remains **binding at each stage of implementation of Directive 2000/60** [WFD] and is applicable to every surface water body type and is defined further by the criteria and annexes of the WFD.[144]

These requirements are binding. Yet, the TSC issued by the Commission for nuclear activities in SCDR Annex I and II do not contain any supplementing or practical criteria. Appendix B simply repeats the mere wording of the Taxonomy Regulation.

Moreover, the criteria set out in the SCDR regarding DNSH of marine and water sources not sufficient to the standard of protection established above. As regards to the limitation of thermal anomalies, it describes abstractively already set out legal requirements. Additionally, it does not state, if exceptions are allowed, as the are regularly issued e.g. in France. The referral to the individual licence conditions and the EU regulatory framework is superfluously at best; e.g. the Directive 2006/60/EC in Annex 1, DNSH (3) is only applicable to drinking water

[144] CJEU, C-461/13 1st July 2015, ECLI:EU:C:2015:433, rec. 70, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62013CJ0461&from=EN (8/6/22). The case law is explicitly applying to surface water bodies, but as the systematic approach for bodies of groundwater and marine resources is comparable, its applicable to these, too.

and water for human use, Directive 2013/59/Euratom is part of the basic law framework, that contains no further criteria regarding pollution prevention.

Furthermore, the applicants are unsure as to how the application of the "Industry Foundation Classes (IFC) Standards" (e.g. Annex I, 4.26, DNSH(3)) guarantees any benefit to the sustainable use and protection of marine and water resources.

(bb) Material risks to the status of water and marine resources

The following key issues, that constitute significant harm to water and marine resources, should have been at least (properly) addressed by the Commission. Some of them are unavoidable, hence excluding nuclear activities in Annex I and II from the TR scope.

(aaa) Mining and Milling

Mining and milling nuclear fuels causes a great variety of environmental issues, especially contamination of marine and water resources. The Commission fails to assess this altogether despite the fact that radioactive discharge causes physical-chemical deterioration in all types of water bodies.

Water and marine resources can be deteriorated by **tailing dams failures**, that occur rather often and pose a great threat. Especially abandoned or improperly constructed uranium mill tailings can lead to significant contamination of the soil, surface waters and groundwaters, if a proper containment of the tailings is not established or maintained. This is not only an issues in countries with low regulatory framework. One of the largest water polluting event was the Church Rock dam failure in Arizona, US. More than 1,000 t of radioactive mining sludge and about 360,000 m^3 of radioactively contaminated water escaped into the Puerco River in this tailings pond accident.

see in detail in Becker report, A.2.2.1

In-situ leaching is also a great risk to groundwater bodies, capable of deterioration of the chemical status. The JRC Report remains very superficial in this regard. The Commission does not address this at all, despite the obvious need for strict regulation in the EU. The consequences of the in-situ leach process can be seen at the Stráž uranium deposit. Over 350 million cubic metres of groundwater have been contaminated. To date, the entire drinking water supply in northern Bohemia is at risk.

see in detail in Becker report, A.2.2.3

The **decommission of uranium mining sites** is also not addressed properly. Environmental monitoring and water purification will remain an issue for a long time. The storage structures in decontaminated areas and their radioactive content will require constant monitoring for many years. Rivers and groundwater bodies

are exposed to risks of contamination. The JRC Report seems to suggest that even massive polluted areas like these, which involve decades of decontamination work, would not exclude that the environmental objectives are met if nuclear activities are included in the Taxonomy.

see in detail in Becker report, A.2.2.5

„Sustainable“ mining and milling research and appliance is rising. This is not addressed by the JRC or the COM.

see in detail in Becker report, A.2.3

The inevitable lack of control of mining and milling due to lack of jurisdiction of nearly 100 % of the mining sites is also criticised by the SCHEER group:

> *“The SCHEER (...) is of the view that dependence on an operational regulatory framework is not in itself sufficient to mitigate these impacts, e.g. in mining and milling where the burden of the impacts are felt outside Europe.“*

see in detail in Becker report, A.2.4

In this context, the JRC lacks conclusive evidence regarding mining and milling. It asserts, that the “environmentally safe management“ uranium mining and milling “can be ensured.“

However, the JRC only refers to control and prevention measures that are regulated under several Euratom and EU Directives[145]. As stated earlier, nearly 100% of the uranium used in the EU is imported from countries outside the EU, including Kazakhstan where highly toxic chemical leaching is used and this years flooding in 1/3 of the country shows, that nothing is safe in the face of CCC. Kazakhstan is followed by Canada, Australia and several African countries. Here, EU regulations do not apply. The only uranium ore extraction site within the EU is the Crucea mine in Romania.

Moreover, the reference to appropriate measures does not ensure that these measures are actually implemented. Even if measures can be ensured, there are no safeguards identifiable that they will be ensured.

Suitable measures are not discussed in-depth as required in this context, nor when assessing the DNSH criteria (JRC Report, Part A 4.2 p. 182ff), nor for developing the TSC (JRC Report, Part A 5.5, p. 195f with Annex 4.2). There is no explanation of how the TSC should be implemented. The report does not indicate, for instance, how state institutions and regulatory authorities could exercise influence on the

[145] see JRC Report, Chap. 3.3.1.4)

uranium mining industry to ensure that the aforementioned suitable measures achieve the environmental objectives in the Taxonomy Regulation.

see Becker report, A.2.1

This is an additional error in law infringing Art. 19(1)(f) TR and the general procedural rules on the fact finding process (see supra II), as the Commission essentially following the approach of the JRC rather than to reject it as unfounded.

(bbb) Water consumption

Existing NPP (Annex I, section 4.28) and most of the realistic new NPP (4.27) consume vast amounts of cooling water. In 2011, the cooling water supply from NPP in France accounted to 60 % of national withdrawal of surface water.[146]

In particular regarding ground water bodies, Annex V, 2.2.1 WFD, prescribes their groundwater quantitative status as a part of the overall status.

No safeguards have been adopted as TSC. The Annex (Í and II) refers under DNHS only to Annex B. No specific stipulations are adopted (e.g. restriction or efficiency of cooling water as technical requirement).

(ccc) Water discharge

The thermal condition of a water body can cause a serious deterioration of the ecological status.

Vast amounts of warm water are are discharged to natural water bodies from NPP. Thermal discharge to a river causes a gradual mixing of the relatively warmer water over several miles, avoiding the creation of a "thermal wall" that could block fish migration.

This has not been addressed at all. This is especially important, as more and more exceptions are granted under the WFD due to more extensive heat waves and droughts, having an detrimental effect on e.g. rivers.

see Becker report, B.6.2.1

(ddd) Low and intermediate-level waste storage

The groundwater implications of the different storages methods were improperly addressed by the Commission and not assessed by the JRC regarding ground water. A separate consideration of the specific TSC for near surface disposal and geological disposal of radioactive waste is technically necessary.

see Becker report, A.6.2 and A.7

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146 https://taz.de/Atomkraftwerke-in-Frankreich/!5119221/ (8/6/22).

(eee) Radiation in normal operation

Even under normal operation, nuclear power plants cause emissions of significant amounts of radiation. Besides the effects on human health, this affects water bodies. The science on the effects of low-dose radiation is very inconclusive. It has been shown that low-dose radiation raises the risk of cancer especially in children. Apart from this, effects are not well documented. It is therefore unclear, what externalities are caused in water bodies and marine resources, especially while using these with heavy water intake and output. This has not been addressed and as such is at least an infringement of Art. 19(1)(f) Taxonomy Regulation.

see in detail Becker report, A.4.1 and A.4.5

(fff) Consequences of a severe accident

Severe accidents contaminate all kinds of water bodies and marine resources. The JRC and thus the Commission ignore long-lasting and wide-spreading consequences of severe nuclear accidents.

see Becker report, A.1.3

(cc) Interim result

The Commission committed major legal errors, especially in not complying with the benchmark set out in the Taxonomy Regulation. The whole water and marine resource comply is not materially addressed in the DNSH section of Annex I and II regarding nuclear fuels. The JRC addressed this topic only inappropriately.

Unsolvable issues, that cause hazards to this environmental goals, remain.

(v) Circular economy

The DNSH principle under Art. 17(d) Taxonomy Regulation is not met, if significant harm to the circular economy, including waste prevention and recycling can be identified, where the activities

- lead to significant inefficiencies in the use of materials or in the direct or indirect use of natural resources such as non-renewable energy sources, raw materials, water and land at one or more stages of the life cycle of products, including in terms of durability, reparability, upgradability, reusability or recyclability of products

- lead to a significant increase in the generation, incineration or disposal of waste, with the exception of the incineration of non-recyclable hazardous waste;

• the long-term disposal of waste may cause significant and long-term harm to the environment.

According to Art. 2(17) Taxonomy Regulation 'energy efficiency' means the more efficient use of energy at all stages of the energy chain from production to final consumption. Nuclear waste clearly is the one of the major environmental problems.

The Annexes include some language in the DNSH section on "circular economy" . Yet, again, the SCDR does not ensure that no significant harm is caused (Annex I and II, 4.26-4.28, subsection DNSH No. (4). Moreover, all of the nuclear activities described in Annex I and II significantly harm the circular economy inherently; due to this, a lawful delegated act adopting nuclear energy activities as a Taxonomy regulation is not conceivable.

aa) Insufficient provisions in the SCDR

The general TSC in the SCDR (Annex I 4.26-4.28, No. 1 to 6) should both ensure a substantial contribution to climate change mitigation as well as guarantee compliance with the DNSH principle.

However, it simply repeats the EU and Euratom legal standards. As already pointed out above regarding protection and sustainable use of water and marine resources, the legal standard used is already insufficient. Moreover, repeating the current legal standard is not an ambitious approach to achieve the goals of the Taxonomy regulation.

The only exception to this is No. 1 (f) of 4.26-4.28 regarding a "documented plan with detailed steps" for a disposal facility for high-level radioactive waste. As it will be shown below, there is no scientific basis for this to date - having been subject to decade-long research. In this context, the safeguards that such a plan is adopted and ensuring the progress are too weak (3. (f)). There are no specific standards as to how this plan should be in place. The monitoring frequency is too long, as in this time significant amounts of waste would have been produced.

The criterion is also insufficient, as only "technical solutions" for "waste management" is demanded and not for the post-closure period of a disposal facility's lifetime, which is by magnitudes the biggest issue in this regard.

The DNSH criteria for 4.26-4.28 (Annex I and II, subsections DNSH (4) are even less adequate and in line with the requirements of the Taxonomy Regulation. In the case of Annex I, they are superfluous, as they merely repeat parts of the requirements of the "General criteria". As regards Annex II, the wording used is the same as in the equivalent DNSH section in Annex I and therefore even more insufficient. The responsibility for the "management" plan is also entirely up to the (private) operators, no (five-yearly) monitoring is required. The rest of these DNSH criteria in

Annex II reflect, again, the mere minimum applicable legal standard. This is indefensible.

bb) Material issues and inevitable impacts

aaa) Uranium milling and mining

Several issues regarding Uranium mining and milling contradict the circular economy goal, creating significant harm, and are not assessed properly. This concerns every nuclear activity.

As such, creating significant inefficiencies in the use of materials and natural resources as well as a significant increase in the generation and disposal of waste are exclusion criteria.

This is the case regarding the following externalities:

- Uranium mining and milling produces **large amounts low level radioactive waste** due to waste rock dumps and tailings (Becker report, p. 15), creating inevitable significant inefficiencies in the use of natural resources. In several places of the world, these by-products are not disposed properly and people in the site's area are regularly exposed to radioactive substances (see Becker report, A.4.1 and A.2.2.3 for the adverse health effects of low level radiation including lung cancer). Nearly 100% of the uranium used in the EU is imported from countries outside the EU. Suitable measures are not discussed in-depth and there is no explanation of how they should be implemented (Becker report, p. 15). There are no well-established international standards in practice.
- **Highly toxic in situ leaching is creating additional waste**, (see Becker report, p. 14). This is inappropriately assessed by the Commission (see Becker report, A.2.2.3).
- **Uranium mining and milling is inappropriate compared to coal mining**, neglecting the quality of Uranium mining and milling waste production (see Becker report, p. A.2.2.4)
- The Commission and the JRC **inappropriately evaluate the cleaning up of uranium mining sites**, including waste and processing tips removal (see Becker report, A.2.2.5). Contamination of water, air, sediments, soil, humans and wildlife from uranium mining and milling waste is expensive and difficult to remediate, measures are often postponed and radiotoxic contaminations continue. Abandoned waste can be easily accessed by the public. None of these issues is mentioned in the JRC Report sufficiently. To conclude, the JRC Report describes the risk-filled reality of extracting uranium ore and its processing to an inadequate degree.

- **Specific requirements for sustainable mining not considered.** Uranium mining, respectively the issues combined with uranium mining, call for a separate consideration of the issues of intergenerational justice and participation in terms of the sustainability of using nuclear energy. Part of the scientific discourse is calling for strong supervision through government authorities to enforce sustainability and reliable environmental standards. There is no real discussion of the term "sustainable mining" in the JRC Report. It does not examine whether the discussion about sustainable mining has any repercussions for investigating the environmental effects of uranium mining (Becker report, A.2.3)
- "The SCHEER (...) is of the view that dependence on an operational regulatory framework is not in itself sufficient to mitigate these impacts, e.g. in mining and milling where the burden of the impacts are felt outside Europe." This is not materially rejected by the COM. (Becker report, A.2.4).

bbb) Fuel production and s.c. "fuel cycle"

The following aspects of nuclear energy activities regarding the fuel production and the s.c. partial closed fuel cycle lead to significant harm to the environmental goal of Art. 9 (d), 17(d) Taxonomy regulation. It is inappropriately assessed. The concept of the "closed fuel cycle" is theoretical concept and the assertions of its realisation is merely speculative. This fragmentary remarks by the JRC are the basis for the Commission's decision.

In factual terms, these aspects are recounted on the basis of the **Becker report, which** shows that those nuclear activities, that are included in the SCDR (Annex 4.26-4.28) and nuclear energy activities per se, that are reasonably entering the market in the near or medium term future,

- lead to significant inefficiencies in the use of materials and the use of natural resources
- lead to significant increase in the generation and disposal of waste
- the long-term disposal of waste may cause significant and long-term harm to the environment

and thus cannot reasonably be said to not cause significant harm in the sense of Art 17(1) (d).

(α) Waste in Fuel Production phase

The JRC report takes into account the technical process stages of fuel production, **but safety aspects are not considered in-depth**, leaving the efficiency and

functionality about hazard waste production an open question.
See Becker report, A.3.1

The JRC Report describes the necessary technical processes for manufacturing and reprocessing fuel elements and examines the effects on the DNSH criteria, however no consideration is given to transportation. This is a major omission as a d**ischarge of radioactive substances and waste** cannot be ruled out during transportation, even if the current legal requirements regarding hazardous goods are followed, **see Becker report, A.3.1**

No mention is made of the importance of the radionuclides formed in the uranium actinium or uranium radium decay chain with long half-lives. s**ee Becker report, A.3.1**

The JRC Report argues that **large amounts of liquid radioactive waste outside the EU come from military programmes** (Russia, USA) and are not considered further within the report (see Becker report, A.3.1), which severely hampers the correct assessment of global waste management.

The JRC Report fails to include radioactive waste water in its "waste balance area" outside the EU that resulted from exports of waste from the EU. **See Becker report, A.3.1**

In addition to the extensive land and water use, the **inefficient use of energy** is caused by the long energy payback time. It can take five years or more to repay the energy debt expended in the construction of a reactor, see **Becker report A.12.3.**

(β) Recommission and fuel cycle waste

The following aspects are missing or inappropriately assessed:

- **The JRC Report inappropriately assesses the Reprocessing of spent nuclear fuel, underestimating the produced radioactive waste** (partially "closed fuel cycle"). Parts of the spent fuel can be recommissioned once. The JRC assigns this to a "large amount" which is not the case. The JRC Report describes the impact of reprocessing on non-proliferation without noting that reprocessing is still one of the riskiest technologies in terms of weapons proliferation. The JRC Report ignores the **environmental impact of reprocessing and the correspondent** waste.
  See Becker report, A.3.2.1

- The JRC Report evaluates partitioning and transmutation (P&T) and the so-called "closed fuel cycle". However, reprocessing ("partly closed fuel

cycle") has been almost completely abandoned as a technology in Europe - especially because of the significant environmental impacts. P&T (closed fuel cycle) is not yet operational, and it is unclear whether this technology will ever be operational on a commercial scale. Moreover, even this technology would not be fully closed, as radioactive waste is produced. Further, reprocessing and P&T are risky technologies in terms of nuclear proliferation, potentially spreading nuclear waste. **See Becker report, A.3.2**

(γ) Waste from decommission

In its report, the JRC gives an incomplete and insufficient description of dismantling nuclear power plants. In particular, the volume of waste arising from decommissioning a power plant would be significantly **higher than specified in the JRC Report**. Due to the importance of the dismantling process in the life cycle of nuclear power plants and because of the increasing need for information about the challenges and risks associated with this greater importance need to be give to the phase of decommissioning and dismantling when examining the DNSH criteria. (**see Becker report, A.3.4**)

The SCHEER group criticises that the JRC Report is assuming compliance with the regulations is ensured, which is not in fact the case. Moreover, according the SCHEER group, "in many cases, the comparison is quite superficial, without the necessary detail, e.g. the origin of impacts determined by the various phases of the life cycle for different energy generating technologies." (**see Becker report, A.3.5)**

(ccc) Unsafe storage of radioactive waste and spent fuel

The following issues are not supplemented and/or contradict the Art. 17(1)(d) Taxonomy regulation requirement: "The long-term disposal of waste may cause significant and long-term harm to the environment"

(α) Disposing of low- and intermediate-level radioactive waste

- **With regard to the final disposal of low- and intermediate-level radioactive waste**, incomprehensible or incomplete technical statements are included in the JRC Report. This is reflected in the TSC adopted by the Commission. Statements of the JRC give the impression that the disposal of low level waste (LLW) in facilities in near surface repositories is the common approach of disposal, which is untrue. **Long-term storage near surface disposal is not an acceptable option for handling radioactive waste** in a verifiable safe manner in the long term because of the unreliable prediction regarding social and political developments, the danger of

accidents (e.g. caused by a lack of maintenance), and attacks caused by war or terrorism, the risk of proliferation, the huge organisational effort and financial expenditure for future generations and climate uncertainties. These aspects may cause significant and long-term harm to the environment**.**
See Becker report for Details, A.6

- Additionally, the JRC also asserts that the material behaviour of the technical barriers is well-known during the 300 year isolation period and it is therefore possible to predict that the barriers will be sufficiently reliable. This is not explained in any greater detail and/or supported by references. The Asse II case shows that incorrect developments or decisions must be viewed as a risk factor to the environment when long-term storing nuclear energy.
  See Becker report for details, A.6.1

- The risk-related differences especially regarding human intrusion and e.g. CCC between deep geological and near surface repositories have not been assessed.
  See Becker report for details, A.6.2

- The JRC Report does not list any special TSCs for LLW and Intermediate-level radioactive waste (ILW) and states that the TSCs developed for High Level Radioactive Waste (HLW) and spent fuel elements are believed to be satisfactory**.**
  See Becker report for details, A.6.2

- The firm conclusion drawn in the JRC Report for disposing of low- and intermediate-level waste at near surface repositories – i.e. that no significant damage can occur to people's health or the environment as a result – is simply impossible to comprehend from a scientific point of view. **See Becker report for details, A.6.1**

(β) Disposing of high radioactive waste and Spent Fuel

The JRC Report contains unfounded generalisation at many points concerning disposing of high radioactive waste and spent Fuel. Conclusions are drawn from individual, selected examples and their global validity is assumed. Readers without any detailed specialist expertise will miss this.

The following issues reveal that the SCDR do not supplement and/or SCDR nuclear energy activities contradict the Art. 17(1)(d) Taxonomy regulation requirement: "The long-term disposal of waste may cause significant and long-term harm to the

environment"

The conclusions in Part A 3.3.8.9, p. 165 of the JRC Report regarding high radioactive waste and Spent Fuel, e.g. "*The disposal […] does not contribute (the results are zero or negligible) to those indicators representative of the impacts to the Taxonomy Regulation objectives*", are only inadequately supported by the analyses and discussions that are presented. Based on the information in Part A 3 of the JRC Report, this statement is premature and insufficiently justified.

The JRC Report wrongly presents the disposal of high-level radioactive waste as a completely resolved problem by citing the example of the disposal projects in Finland and France. This largely ignores the fact that the Finnish repository is still under construction and in France, the licence application from the operational company has already been delayed on several occasions. Both countries are still years away from starting to operate the facilities.

These issues are addressed in detail in **Becker report, A.7 to A.7.2**, that the Applicants fully endorse.
Selected issues are pointed out below.[147]

- The JRC Report does not adequately consider the fact that **no successful, deep geological disposal of high-level radioactive waste, including the permanent seal, has yet been introduced anywhere in the world**. It should also be noted that only one repository for HLW is currently being built around the world.

- The JRC Report also restricts itself to only two potential host rocks (crystalline in Finland and Sweden and clay in France). Other possible host rocks like salt are missing.

- The JRC Report sketches a **simplified and very optimistic picture of the process of introducing a national** Deep Geological Repository **(DGR).** The examples of programmes that have failed or been halted in the past (e.g. in Great Britain, Germany, Switzerland and the USA) are not mentioned.

- **The JRC Report is also incomplete** as it only considers the time after the repository has been sealed. T**here is no assessment about radiological safety during the operational phase**. There is no successful operating experience for a repository for high-level radioactive waste anywhere in the world. The JRC Report does **not provide any analysis of consequences**

[147] This does not mean that the Applicants limit the subject matter with this. The whole Becker repot, A.7 is part of the subject matter.

from potential accidents, particularly for the operating phase of a geological disposal.

- The JRC Report wrongly states (with regard to radioactive discharge) that the release calculated during the containment phase is far below the permissible thresholds.

- The topic of **unintentional human intrusion** is not appropriately discussed in the JRC Report. The likelihood for this kind of event, which cannot be ruled out, and associated radiological consequences in the light of the long isolation periods that are required for the radioactive waste are neither treated nor appropriately considered when assessing the TSCs and the DNSH criteria.

- The discussion of **potentially damaging, non-radiological effects** of geological disposal of spent fuel elements and HLW (JRC Report, Part A 3.3.8.6, p. 162f) is conducted on the basis of a selection of results from the Swedish environmental impact assessment. It is implicitly assumed that this document contains an assessment that is generally representative for each kind of repository at each place (e.g. climate, geography, biosphere etc.). No reason for this assumption is provided.
- The JRC provides inadequate comparison between carbon (dioxide) capture and storage (CCS) and disposing of radioactive waste in Part B 5, p. 336ff of the JRC Report.
- Imprecise statements are made about the **possible discharge of radionuclides** from the repository into the biosphere.

The following inconsistencies in the arguments and the assessment processes regarding **hazardous long-term storage** are criticized :

- The assessment and the TSC are not compliant with current nuclear waste legislation (see **Becker Report, A.7.3)**
- An insufficient evaluation of the Research and Development of HLW disposing was displayed by the JRC **(see Becker report, A.7.4)**
- The issue of **uncertainties** plays a major role in conjunction with the safety statements about repositories. Yet, the JRC Report does not adequately cover this topic**.** The opposing opinion of the Article 31 Group of Experts points to the existing uncertainties**.** Also the SCHEER group addresses several shortcomings of the JRC Report that have not been taken into account by the Commission. **(see Becker report, A.7.5, A.7.6 and A.7.7).** The JRC Report states that there is *no evidence* that nuclear energy does more harm to the transition to a circular economy, including waste

prevention and recycling, than other energy technologies included in the Taxonomy. This does not meet the legal standard, as no evidence leads to the application of the precautionary standard. Any harm must be positively excluded. Additionally, SCHEER states that the overall conclusion of "no evidence of does more harm" is not sufficiently supported by the information provided within the report.

- With regard to radioactive waste specifically, nuclear energy produces larger quantities of waste than other energy generation technologies. The SCHEER group is of the opinion that there is a scarcity of evidence relating to the circular economy. With regard to waste recycling, there is limited evidence provided.

In conclusion to both the long-term and intermittent storage remarks above, it is not foreseeable that the large amounts of radioactive waste can be stored safely in the next decades at all. This waste can do extremely adverse long-term harm to the environment, especially in a phase where no sufficient final repository exists.

The legal criterion of "may cause" in Art. 17(1)(d)(iii) Taxonomy regulation is fulfilled. The mere speculation of the JRC (and in consequence the Commission) is incompatible with Art. 17(1)(d), 10(3), 11(2) Taxonomy Regulation. Several other issues are not researched sufficiently and remain improperly addressed by the JRC and the Commission, infringing Art. 19(1)(f) and Art. 17(1)(d), 10(3), 11(2) Taxonomy as explained above.

(ddd) "Advanced technologies" and SMR

In addition to the experimental concept of the „closed fuel cycle", SMR cause several specific problems and/or inconclusive research problems regarding waste production, disposal. E.g. current studies reveal water-, molten salt–, and sodium-cooled SMR designs will increase the volume of nuclear waste in need of management and disposal by factors of 2 to 30. SMR are incompatible with existing nuclear waste disposal technologies and concepts (see in detail **Becker report, A.13.1 and A.13.2**).

cc) Interim result

The RIR has demonstrated that the Commission and the JRC omitted many important issues regarding circular economy, waste production and long-term disposal. The way the SCDR approaches these issues in TSC are scientifically and on the basis of the legal standard of the Taxonomy Regulation itself implausible and indefensible.

Several of the stated uncertainties render nuclear energy activities per se ineligible. These shortcoming manifest several errors in appraisal.

(vi) Pollution prevention

Nuclear power must not cause significant harm to pollution prevention and control, where that activity leads to a significant increase in the emissions of pollutants into air, water or land, as compared with the situation before the activity started, according to Art. 17 (e) Taxonomy regulation.

According to Art. 2(10) Taxonomy regulation, 'pollutant' in particular means a substance or other contaminant present in air, water or land which may be harmful to human health or the environment, which may result in damage to material property, or which may impair or interfere with amenities and other legitimate uses of the environment. The several toxic externalities of nuclear energy generation in the whole life cycle, such as release of radiations, radiative gases or other toxic substances fulfil this definition.

Concerning discharges into different environmental spheres, different meanings of pollution apply as regards

- the direct or indirect introduction of pollutants into air, water or land as a result of human activity;
- in the context of the marine environment, pollution as defined in point 8 of Article 3 of MSFD Directive.
- in the context of the water environment, pollution as defined in point 33 of Article 2 of the WFD Directive.

The SCDR regarding pollution prevention under Annex I, II, 4.26-4.28, DNSH (5) are mostly based of the existing regulations (especially to prevent accidents, pollution from mining and storage and disposal for radioactive waste and spent fuel but also for the protection of the harm of radiation to the health of the public and the workers). Appendix C consists entirely of references to legal provisions, including even exceptions to legal standards (see already above). Legal requirements are important, but do not always prevent adverse consequences as already has been shown.

aa) Nuclear legacies must be avoided in order to prevent nuclear energy activity-induced increase of pollution

Anthropogenic nuclear energy use has created nuclear legacies, i.e. pollution in the meaning of the Taxonomy Regulation via the release of pollutants into air, water and land. This was and still is causing significant harm to humans and the environment. These are:

- Dumping of nuclear waste into the Sea or into regions of the Global South. For many of these dumped waste containers there is no knowledge available about where they have been dumped and if they are still intact, if they can and should be recovered. This can be diminished by reducing the

production and use of nuclear fuel and therefore by not promoting additional nuclear energy activity.
- Heavily polluted areas by atomic weapons tests and nuclear bombs. Those kinds of pollution can be diminished by less nuclear energy activity, as proliferation is linked to the civilian use of nuclear fuel (see above).
- Heavily contaminated areas due to severe accidents in nuclear facilities. Pollution due to accidents cannot be ruled out, but at least exceptionally high safety standards have to be followed (which, however, are not prescribed by the TSCs).
- Abandoned uranium mines with huge tailings are polluting the environment with radiation and toxic substances.
- Former nuclear waste disposals cause environmental problems (as in the case of the Asse in Germany).

All of these legacies will probably remain for eternity, constantly polluting the environment. Effective measures need to ensure that these events possibly will not happen again, as they are all severe pollution events. The aspects already mentioned for the circular economy objective apply analogously here.

There are no sufficient assessments or SCDA criteria assessing or preventing this.

bb) Nuclear pollution due to a severe accident

The main risk of nuclear power is a severe accident. Nuclear substance and radiation discharge following a severe accident is the worst and most extensive anthropogenic induced environmental disaster known. Pollution prevention as regards nuclear energy activities is therefore tightly linked to accident prevention.

The JRC Report, mostly considers the normal operation of nuclear energy installations. Accident scenarios are only considered in a short part (A 3.5). They are only considered in terms of their lethality (following severe pollution events), and are inadequately compared to other energy sources, and not, as the Taxonomy requires, to the situation before the activity started.

The JRC report does not mention other aspects of accident risks, which are relevant for taxonomy. Incidents and accidents, particularly when operating nuclear power plants, can lead to the uncontrolled discharge of radioactive substances and therefore cause considerable environmental effects. A holistic assessment of the use of nuclear energy must therefore include a risk assessment related to all the environmental objectives that are relevant to EU taxonomy; which has been omitted .

see Becker Report, A.1

The JRC argues, that „*protection of people and the environment in countries with nuclear installations relies on the existence of a solid regulatory framework that*

oversees the safety and environmental impacts of these installations."[148] As severe accidents are not considered beyond the design requirements in the methodology used by the JRC, these severe accidents have no influence on the assessment of the DNSH criteria by the JRC.

However, this does not mean that accidents can be ruled out. The fundamental possibility that an accident might occur still exists, irrespectively of regulatory frameworks. There is severe disagreement in the political/social debate, not only among the EU member states, about whether this risk is acceptable. In light of this, the reference to the regulatory framework is unsatisfactory and incomplete.

see Becker report for more details, A.1.2

The choice, whether to accept the nuclear risks or not, remains to the Member States of the EU. This sovereign choice does not convey any information about the question if the nuclear risk is a significant harm. In order to not breach the sovereign decision, the Commission must exercise the highest standard possible and in doubt refrain from promoting nuclear energy. If a state chooses to build a new NNP, this is a sovereign choice that the neighbouring states are forced to accept irrespectively of the cross-border risks. This principle does not apply to EU legislation, as it is limited by the principle of subsidiarity.

The incorrect assessment of the JRC of the nuclear pollution risk is inacceptable as are the (vague) requirements in the SCDR Annex I and II.

In particular, the JRC Report focuses its risk assessment of a severe accident on generation III EPR nuclear power plants. These are not in operation in Europe. Europe‘s operating reactors are almost exclusively more than 30 years old. The EPR developed under European nuclear safety standards are not yet in operation. There are only two EPRs in operation worldwide (China), the first starting in 2018. Consequently, there is very little operational experience, and no experience under European nuclear safety standards. A low fatality rate of EPR is therefore not a proven fact.

The Finnish EPR in Olkiluoto-3 has been under construction since 2005; it is expected to start operating in 2022. In the flexRISK project, the risk of a severe accident at Olkiluoto-3 was calculated:

[148] JRC Report, p. 9.

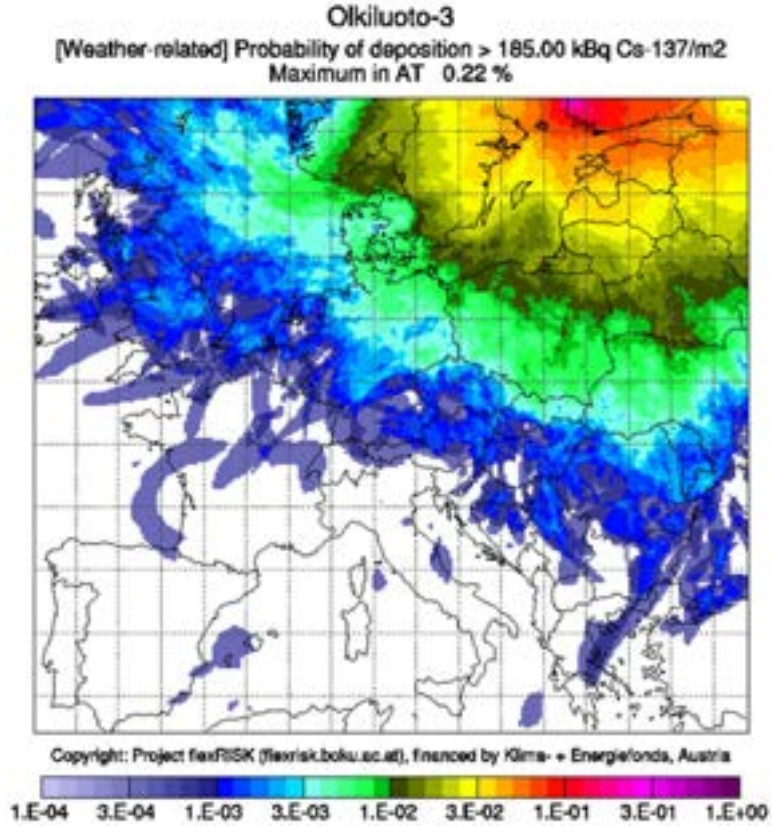

Figure 3:Weather-related probability of a deposition of more than 185 kBq Cs-137/m2 due to a severe accident in Olkiluoto-3 with a source term of 173.7 PBq Cs-137 (FLEXRISK 2022) (Source: Becker report, Fig. 2)

Dispersion calculations were made for an accident with early containment failure assuming a release of 173.7 PBq Cs-137. Figure 3 shows the weather-related probability of being contaminated with more than 185 Kilobecquerel Cs-137/m². After Chernobyl, in regions with > 185 kBq Cs-137/m² the population had the right to resettlement.

It can be clearly seen that the consequences are not limited to a few kilometres around the site. Even in Austria, at a distance of around 1,600 km away, there is a 0.14% probability of a deposition > 185 kBq Cs-137/m² resulting from such a severe accident.

Further, inappropriate focus has been laid on the theoretical calculated probability. In 2015, scientists compiled the most comprehensive list of nuclear accidents ever assembled and used it to calculate the likelihood of other accidents in future. Their conclusion is that the chances are 50:50 that a major nuclear disaster will occur somewhere in the world before 2050. Another study estimated that a Chernobyl or Fukushima accident will occur every 60-150 years in a 50% chance.

see the details Becker report, A.1.2.1 to A.1.2.4

As already stated above, the EU cannot interfere with the state‘s own decision whether extending nuclear energy capacity and accepting the risks or not, in particular as the entitlement to cause cross-border effects derives from this sovereignty principle.

Nevertheless, the EU must maintain its neutrality towards the use of nuclear energy and above all refrain from decisions that would promote its use. It is clear to the applicants, that a 50% chance of a major accident and the following pollution of large areas of Europe are unacceptable. Nuclear energy therefore categorically cannot be a part of the Taxonomy, as pollution prevention is impossible, until new research suggests otherwise. Thus, the Commission is in breach of Art. 19(1)(f) as it neglected the precautionary principle as well as Art. 17(1)(e) Taxonomy Regulation, This applies even more, as the Taxonomy itself prescribes an „ambitious“[149] approach (see already above).

Severe Accidents are also omitted in the JRCs assessment of the DNSH criteria.

see Becker report, A.1.4

This aligns with the criticism of the Art. 31 Group‘s opposing opinion. Those Experts identified several shortcomings and gaps in the considering of accidents by the JRC Report. First of all, it is claimed that severe accidents have to be included in the assessment of the DNSH criterion. It is stated that if severe accidents would be included, the use of nuclear energy would clearly appear as not sustainable. It is also point out that the regulatory framework cannot, per se, exclude severe accidents.

see the list of detailed criticism in Becker report, A.1.5

The consequences of pollution in case of a severe accident are not considered sufficiently. When assessing the consequences of accidents, the JRC largely restricts itself to considering the numbers of human fatalities and omits assessment of nature, ecosystems, biodiversity, assets, marine resources and water bodies. Furthermore, there are shortcomings in analysing the human fatalities. The two major accidents in Chernobyl and Fukushima were not taken into account in assessing the fatality rate. This leads to the conclusion, that the post and pre-activity comparison with respect to the Taxonomy pollution term, that contains the *introduction* of pollutants into the ecosphere, is not assessed correctly. No sufficient pollution prevention is ensured with this approach.

see Becker report, A.1.1 and A.1.3

The SCHEER Group confirms this and the findings just made:

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[149] Rec. (6) Taxonomy regulation.

- The SCHEER is of the view that fatalities is an indicator to assess the impact of severe events but not the only measure for risk assessment.
- The SCHEER also takes the view that concurrent accidents at multiple units on a site can occur in reality.
- In addition, the risks of nuclear accidents will remain irrespective of regulatory safeguards.

see. Becker report, A.1.6

cc) Pollution due to mining and milling

The JRC, the Commission and the TSC in SCDR Annex I and II regarding Uranium mining and milling are based on an overestimation of measures to reduce/prevent the environmental impact and an underestimation of possible consequences.

Regarding the protection of water bodies and marine resources, the depicted discharges into these are equally pollution in the Taxonomy‘s sense. The Commission committed several errors here, in particular insufficient or omitted assessment of major pollution problems, considering no pollution safeguards for the nearly exclusively third state activity of mining and milling (as EU laws are not applying).

The shortcomings have been addressed **above under (iv)(bb)(aaa)** and apply here analogously, as they infringe Art. 19(1)(f) Taxonomy regulation on the one side, where they omit a proper assessment. As regards the safeguards, Art. 17(1)(e), 10(3), 11(2) Taxonomy regulation are not met, as the lack of them do not constitute a „supplementation“.

More errors in assessment, omissions and inevitable implications of nuclear energy activities regarding waste production, inefficiencies and pollution stemming from uranium mining and milling are shown **above under (iv)(bb)(aaa)** as regards to the circular economy objective. They apply accordingly here, too. As waste produced by uranium mining and milling as well as other by-products are inevitable and large amounts of low level radioactive waste due to waste rock dumps and tailings are produced, a significant increase in pollution arises from that activity. This is making nuclear energy materially ineligible to the Taxonomy regulation. Irrespectively of this, the mentioned infringements of Art. 19(1)(f) as well as of Art. 17(1)(e), 10(3), 11(2) Taxonomy regulation occur here, too, as a number of major issues have not been (properly) addressed.

dd) Intermittent storage and long-term storage of radioactive waste and spent fuel

Pollution originating from intermittent storage and long-term storage radioactive waste and spent fuel is a major issue to the circular economy as well as to pollution prevention. Several important issues of those storages remain unsolved **(v)(bb)(ccc),** making the application of the precautionary principle in this case mandatory. Addressing this with the obligation to have a documented plan that foresees a long term storage solution in 2050 is insufficient regarding pollution, as it is unlikely that a high standard of protection will be applied in this plan.

In conclusion, it is not foreseeable that the large amounts of radioactive waste can be stored safely in the next decades at all. This waste can have an extremely adverse impact long-term harm to the environment, thus polluting it, especially during the period in which no final repository exists. A mere speculation on the future availability of storage is incompatible with the standard set by Art. 17(1)(e), 10(3), 11(2) Taxonomy Regulation. Several other issues are not researched on sufficiently and remain improperly addressed by the JRC and the Commission, infringing Art. 19(1)(f) Taxonomy Regulation.

Nuclear energy must be excluded from the Taxonomy due to this fact as well.

ee) Pollution during normal operation and worker's health

As already pointed out above, the Commissions and JRCs assessments fail to consider possible Radiation Health Effects for the public and the workers health. This is an unavoidable risk and constant pollution caused by using nuclear energy plants. Studies have shown the adverse effects on human health caused by very low radiation doses.

see Becker report, A.4 to A.4.5

Again, regarding pollution prevention, the legal question must be answered whether these proven risks, that cause fatalities and are unavoidable, constitute *significant* pollution. The Art. 31 group is apparently in the opinion that this is the case, so Nuclear cannot be classified as sustainable (see Becker report, A.4.4). Similar deliberations are expressed by the SCHEER group: "It is opinion of the SCHEER that this statement [„standards of environmental control needed to protect the general public are likely to be sufficient"] is simplistic and does not allow **estimation of the potential risk for the environment, without an assessment of the potential exposures and sensitivities of the different components of the ecosystems**."

The important question of the acceptance of these risks cannot be answered without a proper assessment. Thus, the Commission infringed basic procedural rules, Art.

19(1)(f) and by not adequately supplementing the DNSH regarding pollution prevention objective also Art. 17(1)(e) Taxonomy regulation.

(ff) Pollution due to Terrorism and War

The JRC Report restricts itself to a very brief statement about the topic of physical protection (disruptive action or other intervention of third parties) and only refers to a few particular aspects (e.g. JRC Report, Part A 3.3.5.1.5, p. 109). Simply referring to the regulatory requirements falls short of the mark in terms of the nuclear security regime, too.

This is inadequate for an overall description in the light of the significance of this subject area. Any unauthorised and improper intervention by third parties to a nuclear facility or material can create significant adverse effects due to discharge of radioactive material, i.e. pollution, affecting people and the environment.

See Becker report, A.9

With this, the JRC and the Commission were ignoring the Risk of Terror Attacks.

see Becker report, A.9.1

Military actions against nuclear facilities, such as the current Russian attacks on Ukrainian nuclear facilities, represent another danger that deserves special attention in the current global situation. A proper risk assessment should have examined these conflict-related scenarios prior to even considering the inclusion of nuclear energy in the Taxonomy. This has not been addressed.

see Becker report, A.9.2

The opposing opinion of the Article 31 Group criticised that the mandate of the Commission was too narrow, making it impossible to review topics such as proliferation and (nuclear) security . It concluded: **In order to give a serious answer to the question of whether nuclear energy is environmentally sustainable, these other aspects have to be taken into account.**

see Becker report, A.9.3

This addresses the inacceptable narrowing-down of the consequence-assessment, that is creating another severe risk of a Europe-wide catastrophe with significant long-term effects due to pollution. This risk, that is sadly near to materializing in the Ukraine, was not different in 2021, when the assessments took place.

It is a severe error in the fact gathering and decision making process (see above II.).

(gg) Interim result

As shown above, preventing any pollution is not possible regarding nuclear energy. It is the opinion of the Applicants, backed by conclusive science, that also *significant* pollution cannot be ruled out, first and foremost the extreme threat of severe accident pollution, pollution from mining and milling and the pollution of the unsolved problem of a safe intermittent and long term storage. Those make nuclear energy categorically Taxonomy-ineligible.

At the very least the incomplete and inconclusive assessment of this topic make Annex I and II unlawful, as the process infringes basic procedural rules (see above II.) and the specific rule of Art. 19(1)(f).

Further, material requirements are infringed, as the SCDR doe not ensure - i.e. supplement - the avoidance of significant harm according to Art. 17(1)(e), Art. 10(3)(b), 11(2)(b) Taxonomy Regulation.

(vii) Protection and restoration of biodiversity and ecosystems

Pursuant to Article 17(1) lit. (f) Taxonomy Regulation, an economic activity is considered to significantly harm the protection and restoration of biodiversity and ecosystems, where that activity is:

- significantly detrimental to the good condition and resilience of ecosystems; or
- detrimental to the conservation status of habitats and species, including those of Union interest.

Hazards and pollution described in the section above (waste production externalities and long-term storage consequences) are equally relevant here, as all of the identified environmental harms are at also significantly detrimental to the good condition and resilience of ecosystems and, where relevant, detrimental to the conservation status of habitats and species, including those of Union interest. For example, a highly radiation polluted marine environment is detrimental to the marine plant and animal species.

The following radiation events and radiative gas sources are significantly detrimental to ecosystems:

- Consequences of severe accidents
- Impacts of Uranium mining and milling
- Fuel cycle facilities (especially reprocessing)
- Storage of high radioactive waste and spent fuels
- Storage of low and medium radioactive waste

In detail:

(aa) Consequences of severe accidents

As was outlined above, the Commission and the JRC did not assess and calculate the risk of a severe accident properly and did not assess other consequences than human fatalities. This was also criticised by the SCHEER and Art. 31 group. This means that data relevant to the biodiversity criterion of Art 17 was severely omitted.

With regard to consequences of severe accidents to biodiversity, the JRC and therefore the Commission missed the extensive set of data and studies relating to the Chernobyl accident.

Recent research shows that species diversity and population density of breeding forest birds decreased with increasing radiation levels in Chernobyl (even after statistical examination of possible disturbance factors such as soil type and height of plant growth). In the most radioactively contaminated areas, the number of animals decreased by 66 percent compared to less contaminated regions. The authors conclude that the ecological consequences of the Chernobyl disaster are considerably greater than previously assumed.[150]

Released radionuclides are still decimating birds, molluscs, butterflies, grasshoppers, dragonflies and spiders in forest areas in the vicinity of the reactor.[151]

The consequences of the Chernobyl accident can still be recognized 25 year after the accident in Germany. Wild boar in Bavaria are still highly contaminated. Therefore, each of the more than 40,000 wild pigs shot annually in Bavaria must be taken to an official measuring station. Many wild pigs are above the limit of 600 Bq/kg, some show values of 10,000 Bq/kg.[152]

25 years after the Chernobyl reactor catastrophe, all 180,000 regularly sold sheep in the mountainous region of Wales still have to be tested. Of the animals tested, five per cent are still above the permissible limit of 1,000 Bq/kg.[153]

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[150] Strahlentelex 2007: Artenvielfalt und Populationsdichte von Vögeln nehmen mit höherer Strahlung ab, Nr. 498-499, see www.strahlentelex.de/Stx_07_498_S05.pdf (9/8/22)

[151] Strahlentelex 2009, 23 Jahre nach Tschernobyl, Weniger und missgebildete Insekten und Vögel, Strahlentelex Nr. 534-535, 2. April 2009, www.strahlentelex.homepage.t-online.de/Stx_09_534_S01-02.pdf, (9/8/22)

[152] BR 2011: BR-online: Pilze und Wildschweine immer noch belastet, 2011, www.br-online.de/aktuell/bayern-25-jahre-nach-tschernobyl-DID1301314188697/kernenergie-tschernobyl-bayern-ID1300698738756.xml, (9/8/22)

Tagesschau: 424.650 Euro im Jahr für verstrahltes Wildbret, 29.07.2010, www.tagesschau.de/inland/tschernobyl110.html, eingesehen Februar 2011

[153] Tagesanzeiger: Strahlende Schafe, 07.01.2011, https://www.tagesanzeiger.ch/strahlende-schafe-897048763244 (9/7/22).

These examples show not only that long-term and widespread radiation pollution follows from a severe accident, but also that significant harm is caused upon ecosystems, destroying their resilience. Impacts of a severe accident on habitats and species, including those of Union interest, would be extremely detrimental to their conservation status.

This is supported by the Scheer Group which criticises the lack of detailed assessment.

The Commission and JRC therefore knowingly left out a big part of research regarding biodiversity, providing an insufficient factual and scientific base. Also, again, the JRC and the Commission are applying a wrong legal standard.

The JRC Report finds there is no evidence that nuclear energy „does more harm to the protection and restoration of biodiversity and ecosystems than other energy technologies included in the Taxonomy".[154] When supplementing TSC for the DNSH it falls on the Commission to prove that with the TSC the activity does not significant harm biodiversity, i.e. exclude significant impacts. This is not equal to state no evidence is available. Furthermore, SCHEER criticised the comparison of NPP to other energy generating technologies in the first CDA, as 'do less harm than at least one of the comparator technologies', is different (not equivalent) from "do no significant harm".[155]

Regardless, the TSC regarding biodiversity (SCDR, Annex I, II, 4.26-4.27, DNSH (6) are not sufficient in supplementing the DNSH principle in this field on their own (Art. 17(1)(f), 10(3), 11(2) Taxonomy regulation).

- They do not contain any concrete measures regarding biodiversity protection – thus do not only not supplement the Taxonomy, but also open the door to harming activities.

- The reference to Appendix D is superfluous as the Appendix contains the same criteria as DNSH.

- The other criterion referring to the Environmental Impact Assessment (EIA) Directive (2011/92/EU) is superfluous since it only reiterates mandatory law: An EIA must to be carried out for a NPP anyways – this is not a supplementation, as demonstrated above. Further, in an EIA, the assessment of a severe accident does not lead to stricter mitigation measures regarding a severe accident.

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[154] JRC report, p. 60.
[155] SCHEER report, p. 11.

- An „appropriate“ assessment for sites near to biodiversity sensitive areas is subdelegated to the operators. This criterion is so vague that it does not meet the definition of a TSC.

- The same applies to the repetitive „criterion“ that „The sites/operations shall not be detrimental to the conservation status (...)“.

(bb) Uranium mining and milling

It was stated above, that nearly all Uranium mines and milling sites are located outside of the EU. The TSC contain no safeguards to enforce biodiversity protection.

Under **(iv)(bb)(aaa) above** it was demonstrated that mining and milling cases significant threats to water bodies and marine resources, e.g. with the introduction of other radioactive and toxic substances into the environment as in tailings or via in-situ leaching using toxic substances, that discharge along with uranium into water bodies. Other effects that harm ecosystems due to mining and milling are land and air pollution due to the discharge of toxic by-products and substances like radioactive gases, that have the potential to be spread widely.

These harms cannot practically be prevented currently, as just one mining site exists in Europe, that is by far not enough to satisfy the demand and therefore uranium is sourced from third countries where EU regulations or other pollution prevention measures do not apply.

Again, this current harm and future threat to biodiversity makes nuclear energy ineligible to the Taxonomy Regulation, as a supplementation cannot lead to allow or to encourage activities that significantly threat the environment (Art. 17(1)(f), 10(3), 11(2) Taxonomy Regulation).

(cc) Fuel cycle facilities reprocessing

The JRC Report ignores the **environmental impact** of reprocessing. As part of the reprocessing process, plutonium is separated from the uranium in the spent fuel. Recent research concludes:

> *“Plutonium separation generates the largest radioactive emissions in the overall nuclear fuel chain and has significant contribution to the collective global dose (of radiation). The processing plants in France and the UK have been disposing radioactive emissions into the ocean. One of the radioactive materials, iodine 129, has been found on the northern Norwegian coast and the Baltic Sea, according to the Riso*

National Laboratory in Denmark. Some 4 tonnes of iodine 129 had been discharged by the reprocessing plants by 2004, and the concentration of iodine 129 in the Baltic Sea in 2000 was 1,000 times higher than before nuclear energy existed."[156]

see in Detail: Becker report, A.3.2.1

This points out how severely biodiversity can be affected due to fuel reprocessing. Even very low doses of radiation have a significant adverse effect on organisms, including human beings. It still needs to be researched to what extent marine life and land species are affected. The precautionary principle has been wholly disregarded in the assessment, as was the standards of "conclusive evidence", Art 19 Taxonomy Regulation.

(dd) Storage of low, medium and high radioactive waste and spent fuels

The specific risks arising from nuclear waste storages under referral to the points listed in A.6 and A.7 of the Becker report are listed above (vi)(dd).

The JRC report suggests that near-surface repositories for LLW and ILW are the ones that should being used. However, if a leak occurs, more unfavourable effects to the environment and biodiversity are caused in near surface repositories than in a deep geological repository, e.g. in the Asse event. The JRC incorrectly classifies the latter as a positive example for safety management.

see Becker report, A.6

The JRC Report does not list any special TSC for LLW and ILW and states that the TSCs developed for HLW and spent fuel elements are believed to be satisfactory (cf. JRC Report, Part A 5.7, p. 196f). There is no reasoning for this. It must be assumed, that due to external events as extreme natural phenomena, the TSC are not sufficient. Deep depositories for HLW and spent fuels provide entirely different conditions to near-surface ones.
The firm conclusion drawn in the JRC Report for disposing of low- and intermediate-level waste at near surface repositories – i. e. that no significant damage can occur to people's health or the environment – is wholly incomprehensible.

Regarding HLW and spent fuels depositories, the TSC in the SCDR rely on the assumption, that these storages will be in operation until 2050. However, the Commission and the JRS do not assess the multiple problems that must be resolved before HLW depositories can safely go into operation. There are a number of risks that go along with these assumptions which in turn threaten biodiversity, including uncertainties regarding the long operation time.

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[156] http://large.stanford.edu/publications/coal/references/arita/ (9/8/22)

These are listed in Becker report, A.7.1 and A.7.5

This assessment is confirmed by the opposing opinion of the Art. 31 Group,

see Becker report, A.7.6.

The SCHEER Group is of the view that high-level waste storage remains an open research question, with considerable uncertainties.

In conclusion, it is not foreseeable that the large amounts of radioactive waste can be stored safely in the next decades at all. This waste can have an extremely adverse impact on biodiversity especially in the phase where no sufficient final repository exists. This mere speculation is incompatible with Art. 17(1)(f), 10(3), 11(2) Taxonomy regulation. Any existing margin of appreciation regarding the precautionary principle is widely overstepped (Art. 19(1)(f) Taxonomy regulation).

(ee) Nuclear is hampering climate change mitigation and amplifying CCC
As shown above, the SCDR nuclear energy activities amplify climate change due to their indirect and direct GHG emissions. NPP also intensify negative CCC, e.g. rivers that heat up by the temperature rise due to climate change are even more heated by the large amounts of hot cooling water discharge.

The effect of climate change on biodiversity loss and hampering of ecosystems, species and habitats are well documented (**see Becker report, B.5).**

(viii) Interim result to DNSH
Nuclear energy activities as described in Annexes I and II are significantly harming all of the environmental goals. This is due to their inherent adverse implications as well as due to the lack of sufficient assessment and/or insufficiently codifying prevention measures in the TSC.

(5) CSR minimum safeguards, Art. 18 Taxonomy regulation
According to Art. 18(1) Taxonomy regulation, certain CSR and Human Rights protection procedures must be implemented by the undertakings that carry out an economic activity within the scope of the Taxonomy regulation, in particular to ensure the alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights (UNGP), including the principles and rights set out in the eight fundamental conventions identified in the Declaration of the International Labour Organisation on Fundamental Principles and Rights at Work and the International Bill of Human Rights.

In 2016, the UN adopted the UN Sustainable Development Goals (SDG), that especially aim at Human Rights protection[157], as they are set out in the aforementioned conventions and further formulated in UNGP and OECD Guidelines.

The **Becker report** identified major hazards to the SDG by the nuclear energy activities, that are set out in the SCDR.

see Becker report, A.8

Especially the insufficient assessment of the sustainability goal that addresses the rights of future generations, including the growing hazardous nuclear legacies and unresolved issues such as knowledge preservation for hundreds of thousand of years

see Becker report, A.8.1

The involvement of stakeholders is greatly oversimplified in the JRC Report. The SDG about participative decision-making is insufficiently considered,

see Becker report, A.8.2

Some of these shortcomings are supported by the Opposing Opinion of the Art. 31 group, see **Becker report, A.8.3**.

Several human rights frictions and violations are an inherent part of the nuclear energy life cycle, e.g. health and working conditions in mining and milling sites, bribery, nuclear weapon proliferation. It is not possible to examine if the nuclear activities in the SCDR inevitably infringe Human Rights, rendering companies unable to establish plans “to ensure” the alignment to the conventions. This seems possible given the lack of EU jurisdiction.
There is at least a strong risk on the basis of conclusive data. Such activities would not comply with Art. 18 Taxonomy regulation. They can therefore not be included in the SCDR.

There has been no sufficient assessment of the Commission or their four assigned expert groups, resulting in a severe legal procedural error in the fact gathering process (see above II.).

(6) Interim result to the nuclear energy activities part

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[157] see OHCR, https://www.ohchr.org/sites/default/files/Documents/Issues/MDGs/Post2015/SDG_HR_Table.pdf (9/6/22)

The nuclear energy activities for which the SCDR sets TSC are not Taxonomy-eligible. These economic activities contradict both major Taxonomy layers: The substantial contribution requirements and the "Do No Significant Harm" principle.

In particular, they make no contribution to climate change mitigation as practically unlimited amounts of GHG emissions are allowed in the up- and downstream value chain under the TSC.

Further, labelling nuclear energy as effective climate change adaptation (as is the result of Annex II) is a blank-check for nuclear energy facility to obtain the "environmentally sustainable" label, as no specific requirements are set out.

Nuclear is also not eligible as transition activity. Any nuclear activity as codified in Annex I will be too late to make any reasonable contribution to the climate compatible transition to be completed in 2050. Planning and construction of an NPP takes up to 20 years. Finally, nuclear energy activities significantly harm every environmental goal that the Taxonomy regulation intends to protect.

c) Material criteria regarding fossil gas

The SCDR also does not meet the material requirements set out in the Taxonomy Regulation when defining fossil gas as environmentally sustainable under certain circumstances.

As already stated above (under b) 1), according to Art. 3(d), 10(3), 11(2) Taxonomy Regulation, the technical screening criteria can be enacted only to *supplement* the provisions regarding substantial contribution to the listed environmental goals or have to *supplement* the DNSH principle measured against Art. 17 Taxonomy regulation.

The SCDR does not fulfil these requirements with respect to fossil gas. Not a single substantial contribution to the environmental goals can be identified.

The Commission explicitly qualifies the gas activities as falling under Art 10(2) "transitional activities" in the chapeau to 4.29-4-31 of Annex I. Due to the internal connection between Art 10(1) and 10(2) Taxonomy Regulation, the RIR turns to these provisions in turn, as above b) for nuclear generation activities.

In detail:

(1) No competence under Art. 3 (d), 10(3), 11(3) Taxonomy Regulation

Including fossil gas in the Taxonomy is not covered by the enabling clause in the Taxonomy Regulation. As already stated above,[158] the competence derived from Art. 3 (d), 10(3), 11(3) Taxonomy regulation only allows setting out technical screening criteria; shortly: rules for practical use.

While the use of fossil gas may not be a substantial political issue as far-reaching as the use of nuclear energy, it is still a substantial extension or amendment of the Taxonomy Regulation. The legal basis only allows for supplementation and not amendment.

First and foremost, this follows from the definition of renewable energy sources; the Taxonomy aligned list on generation options is exhaustive in Art 10 (1) and (2) (see supra c) (2) ii) fossil Gas is not part of it. This decision by the European lawmaker cannot be undermined by using the enabling clause.

Fossil gas is also *per se* excluded from the Taxonomy. The threshold set in law for a Taxonomy eligible activity is the need of not only a contribution, but a *substantial* contribution to climate change mitigation. This would have to be shown on the basis of conclusive scientific evidence (Art. 19(1) lit. (f)), which is not the case.

Again, it is important to note that excluding activities from the Taxonomy has no effect on permission granting processes. The Taxonomy exists to accelerate the transition process by leveraging higher investments. Even if it was true that some more gas fired power plants are inevitable in the near future for energy security reasons, this would not justify including such installations in the EU Taxonomy as has been done in Annex I and II. of the SCDR .

Because of the conclusive science base requirement, only clearly sustainable activities with a clear positive influence on the transition are to be included on the basis of Art. 10 Taxonomy Regulation. The wording “substantial contribution” is the outer limit of a narrow corridor of secondary law making.

It is evident from the legislative history alone that the role of fossil gas power plants in the transition is highly controversial. There is no conclusive scientific evidence that additional investment for such plants is needed. In fact it will be shown below, that including Fossil Gas as an energy carrier in the Taxonomy will hamper the transition in particular by slowing down renewable energy uptake.

(2) Fossil gas is no climate change mitigation activity

(i) No substantial contribution to stabilisation of GHG

[158] III.1.a)(2)

According to Art. 3 (d), 10(1) half-sentence 1 Taxonomy Regulation, an economic activity can only qualify as a climate change mitigation activity if it substantially contributes "to the stabilisation of greenhouse gas concentrations in the atmosphere" in line with the Paris Agreement goal "through the avoidance or reduction" of GHG.

Although the eligible activities are listed exhaustively in half-sentence 2 of Art 10 (1), the first half-sentence is an effective (while coarse) filter and cannot be disregarded. Insofar as all of the fossil gas activities included in the Annexes of the SCDR are adding enormous amounts of GHG to the atmosphere, this first threshold is not met.

Not adopting this textual interpretation of Art. 10(1), the TEG sets out an overarching, technology agnostic compromise of CO_2 emission threshold of 100g CO2e/kWh applicable to electricity generation, heat production and co-generation of heat and electricity. This threshold is to be reduced every five years in line with political targets set out to achieve net zero emissions by 2050.[159] This threshold is already a compromise including "political targets for future allowed emissions".[160]

The Platform confirms this:

> *"Only the first TSC for climate change mitigation (4.29.1a): Life-cycle GHG emissions from the generation of electricity using fossil gaseous fuels are lower than 100 g CO2e/kWh - ensures a substantial contribution to climate change mitigation from individual gas-fired energy facilities. (...)*
>
> *Recommendation: That criterion 1.b) is removed and criterion 1.a) 100g CO2e/kWh on a life cycle basis is maintained as this is the science-based, technology neutral approach consistent with other energy activities in the existing climate delegated act. Any criteria for GHG emissions above 100g CO2e/kWh on a life-cycle basis could use an alternative Taxonomy treatment such as an Intermediate Performance (or Amber zone) in any extended Taxonomy beyond green (with the final Platform proposal being published in coming weeks)."*[161]
>
> (emph. added)

The Commission has not followed this finding as to "substantial contribution" and has provided no plausible explanation, why this science-based thresholds is

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[159] TEG, final report, p. 205 ff.
[160] TEG, final report, p. 206
[161] Platform, Response to Complementary Delegated Act, p. 3.

exceeded in the Annexes which allow for less stringent technical thresholds (e.g. 270 CO2e/kWh output energy for gas plants that received their permits in the next 8 years). Moreover, the Commission does not adopt the suggested the five-yearly decrease of that value to ensure the correct climate pathway is upheld.[162]

Rather, in the one sentence addressing this criticism, the Commission misses the point when it confuses complying with a Paris-/EU climate-conform pathway with the best efforts possible.

> *"The Commission rejects this criticism insofar as it seems to be based on the assumption, which is contrary to the purpose of Article 10(2) of the Taxonomy Regulation, that only the technical screening criteria that ensure the most substantial contribution to the climate change mitigation objective and do no harm, or the least harm to the other environmental objectives could be included in the Delegated Act."*[163]

As already shown, the 100g-treshhold is a compromise between political targets and science. It does not constitute the best effort goal but rather the uppermost tolerable threshold. It still allows substantial emissions from "environmentally sustainable" economic activities, and neither avoids or reduces GHG emissions directly.

Thus, based on conclusive science, all fossil gas activities exceeding the 100g CO2e/kWh limit are not within a credible Paris trajectory, thus in non-compliance with the overarching requirement of Art. 3 (d), 10(1) half-sentence 1 Taxonomy Regulation.

This applies **even more** to transitional activities in accordance with Art. 10(2) Taxonomy Regulation, as the pathway in this provision must be set to *achieve* the limit of 1,5 °C above pre-industrial levels. This is an even higher standard than in Art. 10(1) where the "long-term temperature goal of the Paris agreement" is implemented, which refers to Art. 2 of the Paris Agreement "well below 2 °C, (but only) *preferably* 1,5 °C". This indicates that indeed, under Art 10 (2) only the most substantial contributions are eligible, in contrast to what the Commission advocates.

The Commission fails to take into account the fact that such new or retrofitted gas power plants are typically in operation for about 35 years. Carbon net neutrality – to reach the Paris and the EU's climate goals according to Art. 10(1) half-sentence 1, (2) – must be met in 2050 in accordance with existing EU law. As the declining threshold of the TEG's and the Platform's recommendation has not been followed and no decline in emissions is implemented in the TSC, the

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[162] as proposed by the TEG, final report, p. 205 ff.
[163] SCDR-draft, COM C(2022) 631 / 3 p. 5 f.

Annexes to the SCDR in effect strongly hamper the net zero goal with every power plant constructed or operating from now. There is (currently) no legal basis for taking them out of operation and they will continue to emit GHG longer than 2050. Extra efforts in compensation would be needed, which is still not scalable today. There is no scientific evidence, that abatement in this magnitude is likely to become realty.

Hence the approach of the Commission regarding fossil gas and the climate goals is not based on conclusive science and does not respect the precautionary principle, as it allows opening of emitting operations and only hopes for a technical solution later.

(ii) No specific mitigation activity (examples a) - h))

Fossil gas as included in the annexes of the SCDR is no climate mitigation activity, and does not meet the criteria set out in Art. 10(1) lit. (a) to (h).

(aa) Lit a)

Lit. (a) of this provision is evidently not met. This follows directly from the referral in Art. 10(1)(a) Taxonomy to Art. 2(1) of Directive (EU) 2018/2001 (RED II), which defines 'energy from renewable sources'. This definition does not include fossil gas or gases blended with fossil gas as an energy carrier.

Only gas plants which are exclusively able or being allowed to combust "renewable" gases per definition of Art. 2(1) RED II can be the object of an economic activity that is "generating, transmitting, storing, distributing or using renewable energy".

Moreover, "a potential for significant future savings" is not achieved by constructing, refurbing or operation of fossil gas plants (Annex I 4.29 to 4.31), at least not those with no declining threshold or a mandatory fuel switch.
This clause can evidently only be applied to activities within the definition of "renewables" as it is not extending but specifying the named renewable energy activities listed in the first half-sentence.

Also, this clause can only aim at technologies which are already commercially or technological feasible or are provable of being so in the future. Otherwise this clause would be a door-opener for technologies that are highly emitting greenhouse gases today and likely in the future too, assuming that the technology for future savings is not technically or economically developed yet. This would also be highly indicative for a lock-in effect to happen, and contravene the precautionary principle.

In this context, it is arbitrary or at least highly contradictive, **that criteria for biogas that can be blended are not as strictly regulated as plants exclusively**

using biogas (See 4.29 No. 3, Annex I SCDR, in comparison to 4.8 Annex I regarding biofuels)

(bb) Lit. b)

The construction, refurbishment and operation of fossil gas activates specified in SCDR Annex I 4.29 to 4.31, is not an activity **improving energy efficiency** (**lit. [b]**). It is an activity which can be the object of energy efficiency improvement but not the activity which improves efficiency itself (see analogously supra III. 1. c) (2) (i) (cc)).

(cc) Lit c)

As already pointed out above under III. 1. c)(2)(i)(dd), lit. **(c) (mobility)** cannot reasonably refer to energy generation activities, as this would be a general door-opener for any and all high-emitting or polluting generation techniques for local non-emitting transport modes. If the energy source for generating electricity e.g. for battery-operated electric cars could fall under this provision, even a Diesel power plant could contribute to the "increase of clean mobility" as the car itself is contributing to "clean" mobility. This can obviously not be the aim of this provision.

Fossil gas can also not be included in this criterion because due to Art. 19(1) lit. (g) Taxonomy regulation the delegated act has to take into account the life cycle of the activity – which is in either conceivable way not "clean" or "climate-neutral" as even applying all the thresholds of the Commission to SCDR Annex I 4.29 to 4.31 air pollution and CO2 emissions are widely allowed.

(dd) Lit d)

Lit. **(d)** is evidently not met as there is no conceivable way of using fossil gas a contribution to the **switch to sustainably sourced renewable materials** with a plausible causal link (regarding SCDR Annex I 4.29 to 4.31).

(ee) Lit e)

Lit. **(e) (use of carbon capture)** is not met regarding SCDR Annex I 4.29 to 4.31. This clause does not include any activity which is just causal for a possible increase of the use of CCU or CCS with no imminent link that ensures a net reduction in GHG.

In fact, the more fossil gas is consumed, the more CCU or CCS might be needed for compensation if carbon budget shall be observed as assumed in the pathway employed by the JRC and Platform. Including fossil gas in the SCDR will lead to more fossil gas consumption (see below (4) i) and Annex 13 - Aurora Report).

(ff) Lit f)

Lit **(f) (carbon sinks)** is evidently not applicable. There is no conceivable way in which the fossil gas activities in SCDR Annex I 4.29 to 4.31 can increase land carbon sinks. The opposite is the case, as gas blending with non-food biogases leads to secondary land use change effects and sink destruction.

(gg) Lit g)

Lit. **(g)** requires the economic activity in question to **establish energy infrastructure**. The wording "establish" restricts the scope of this clause to integral elements of the energy structure:

As was set out above, establishing energy infrastructure equals building this infrastructure in a lasting way. There is no definition of energy infrastructure in the Taxonomy regulation. As set out above, the TEN-E regulation (EU 347/2013), Art. 2(1) in conjunction with Annex II.2 defines energy infrastructure as equipment or facility, which falls under the energy infrastructure categories of long-distance pipes, storages, decompression facilities or transport related equipment facilities. Energy generation is not included in this list.

The fossil gas related activities as set out in SCDR Annex I 4.29 to 4.31 are all related to energy generation. Lit. **(g)** is inapplicable.

This is reaffirmed even under the assumption that the Commission proposed that fossil gas activities can be seen as a part of the energy infrastructure due to their alleged flexibility functionality. As the RIR shows below, including fossil gas plants in the Taxonomy leads to less green flexibility technologies in the grid and to more curtailment of renewable energy generation and thus also lowers the need and incentive increase capacity of the required energy infrastructure for a full decarbonisation.

(hh) Lit h)

Lit. **(h)** is evidently not met, as the fossil gas activities (SCDR Annex I 4.29 to 4.31) do not ***produce*** **fuels**, above all, not **from carbon neutral sources**.

(3) No indirect climate change mitigation activity (Art. 10 (2))

According to Art. 10(1)(i) and Art. 10(2) Taxonomy Regulation, activities that are no *direct* climate change mitigation activities pursuant to Art. 10(1)(a) to (h) might potentially be eligible if they contribute indirectly to climate change mitigation.

Those activities fall into the categories *transitional* and *enabling* activities.

Below we will show that neither category as defined by the Taxonomy Regulation defines them fits the fossil gas activities in Annex I and II, No. 4.29 to 4.31), starting again from the potentially wider requirements for a transitional activity under Art. 10(2) Taxonomy Regulation, turning then to enabling climate changes measures.

(4) No transitional activity

Fossil gas activities listed in Annex I of the SCDR are not a transitional activity, neither in the shape of conventional or H2 ready new electricity generation facilities (Section 4.29 of Annex I), nor in the shape of co-generation of heat/cool and power from fossil gas (Section 4.30 of Annex I) or of the co-generation of heat/cool in an efficient district heating system (Section 4.31 of Annex I).

Again, as set out in the section on nuclear (III.1.b 2) iii)), in accordance with Art. 10(2); 10(1)(a) to (h) Taxonomy Regulation, an economic activity for which there is **no technologically and economically feasible low-carbon alternative** shall qualify as contributing substantially to climate change mitigation where it **supports the transition** to a climate-neutral economy consistent with a **pathway to limit the temperature increase to 1,5 °C above pre-industrial levels**, including by phasing out greenhouse gas emissions, in particular emissions from solid fossil fuels, and where that activity:

> (a) has greenhouse gas emission levels that correspond to the best performance in the sector or industry;
> (b) does not hamper the development and deployment of low-carbon alternatives; and
> (c) does not lead to a lock-in of carbon-intensive assets, considering the economic lifetime of those assets.

Thus, a non-low carbon activity without any low-carbon alternative qualifies as climate change mitigation, if it is 1,5 °C-pathway consistent itself and meets certain further requirements und lit. (a) to (c) of Art. 10(2). This test is not met by the fossil gas power and warmth/cool plants as defined in Annex I/II 4.29-4.31, as shown below.

To substantiate the facts and plausible assumptions, a report by the renowned institute Aurora Energy Research is attached as

Annex 13 (in the following "Aurora report).

It shows that not only legal errors make the Annexes unlawful, but also certain assumptions and the fact gathering process are erroneous. Above all it substantiates the point in law that the SCDR both hampers development and deployment of renewables and creates a lock-in effect.

(i) Legal term "transition"

The economic activity has to "support the transition to a climate-neutral economy".

According to Art. 2(2) EU Climate Law, the EU economy shall be climate neutral at the latest in 2050. This is consistent with Art. 2 Paris Agreement, as supplemented by Decision 1/CMA IV.21, 22 Glasgow Climate Pact.[164]

Similar to the assessment of the applicants of the nuclear energy activities promoted by the SCDR, subordinating fossil gas activities under the term "transitional" is highly misleading and legally erroneous, as the promoted measures are not intended to establish transitional measures for a limited time, until the transition is fulfilled, but rather to facilitate the refurbishment and building of fossil gas plants that emit well into the phase of a carbon-neutral economy.

Again, as set out above in section III.1.b 2) iii) (aa) transitional activities within the meaning of the Art. 10(2) Taxonomy Regulation can only be such of a limited amount of lifetime or operation; respecting the pathway to the transitioned state (in 2050 at the latest).

No limitation of the lifetime of the gas activities is implemented in the SCDR, rendering the covered activities not transitional. As a matter of fact, these assets are rather long term assets, maybe intended by the Commission to serve a (poor, non Taxonomy eligible) mitigation purpose through the back-door (which is, as it will be shown below, scientifically indefensible). This is also the opinion of the Platform:

> *"To be consistent with the Climate DA, the "transitional" (as per Art. 10-2) labelling shall not apply to this."* [165]

The Commission did not address this criticism as far as the applicants can see. As the regularly expected lifetime of a convention Combined-Cycle Gas Plant is 35 years[166] a fictionally gas plant starting operation today would very likely still run after the transition needs to be achieved in 2050 (2057).

No other limitation is implemented in the SCDR or elsewhere to ensure that the installations no longer operate after 2050, certainly not by No. 4.29 to 4.31 Annex I/II SCDR. It is purely speculative whether those additional gaseous fuel

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[164] The latter can be viewed under https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf (8/29/22).

[165] "To be consistent with the Climate DA, the "transitional" (as per Art. 10-2) labelling shall not apply to this.", Platform, Response p. 23.

[166] see https://www.ier.uni-stuttgart.de/publikationen/arbeitsberichte/downloads/Arbeitsbericht_01.pdf p. 2 (8/29/22).

combusting installations will be needed or allowed after the transition period. The link between the necessity of promoting fossil gas today and needing additional low-carbon gas plants capacity during or after the transition is not shown nor plausible.[167]

Is also not mandatory to stop using carbon-intensive fuels in 2050 or at any time before. No explicit fossil fuel stop is assigned to the 100 g CO2e/kWh threshold. No upstream chain emission stop is assigned to the other thresholds. Thus, these plants are Taxonomy eligible albeit being allowed to combust fossil gaseous fuels indefinitely, directly contravening the EU Climate law, international climate law and the term "transition" of Art. 10(2) TR.

Moreover, the SCDR does not atcually follow a "transition", as the Annexes do not contain any decreasing pathway. In accordance with Art. 4(1) Climate law, the reduction goal of 55 % in 2030 compared to 1990 levels is binding, too, which is not addressed in the TSC. These non-decreasing GHG value is directly contravening this decreasing overarching threshold. What is more, some (big) parts of the GHG emissions are already not assessed.

In detail:

- The life-cycle 100 g CO2e/kWh criterion regarding fossil gas activities under 4.29, 4.30 or 4.31 of Annex I and II does not comprise a decreasing factor, thus allowing vast amounts of CO2 to be emitted after 2030 and even after 2050. The Commission does not comply with the TEG recommendation of a single 100g CO2e / kWh threshold, that decreases every five years "in line with political targets set out to achieve net-zero emissions by 2050".[168] The Commission has committed a legal error by codifying a threshold that excludes the "transition" term.

  According to the CJEU's standing case-law, this is a manifest error of judgement raising serious doubts of the lawfulness as well, as the Commission has not taken into account a key relevant factor (the need of implementing a decreasing pathway factor).[169] It also failed to access correctly the material facts underpinning its analysis due to a legal error. Its solely reaction to the recommendation of the TEG was the blanket statement that the TEG is not applying the correct legal standard.[170] This is indefensible. The Commission would have needed to clarify either its

[167] see Aurora Report, p 3-6.

[168] TEG Final report, p. 205.

[169] see Case C 27/76, United Brands v. Commission , EU:C:1978:22, paras. 252 256.

[170] see SCDR-draft, COM C(2022) 631 / 3 p. 5 f: The COM claims that the TEG is confusing "substantial contribution" with the "most substantial contribution", which is not the benchmark of the TR.

own interpreted legal and factual standard as a transition threshold without a decrease is an evident contradiction to the legal term "transition" as well as to the scientific recommendations; or the facts itself taken into consideration are not conclusive.

- The 270g CO2e/kWh output power threshold is an alternative requirement to the 100 g CO2e/kWh threshold applying to SCDR Annex I/II 4.29-4.31. It contains no decreasing factor until 2035, thus misaligning with a reduction pathway.

  Moreover, as only output power is addressed by this TSC, more than double of these GHG emissions can be emitted in the time until end of 2035 due to emissions in the upstream chain: In most of the EU countries, gas is imported from overseas or long distances with no controllable upstream chain. Methane leakage in the gas production facility as well during the transport, e.g. with LNG carriers, cannot be addressed with the requirements of SCDR Annex I/II 4.29-4.31, each 2. (a). The requirements laid down only apply to the generation facility itself, neglecting upstream chain emissions (Methane emissions alone up to 168,75 kg CO2e/kWh).[171] Transport and production emissions are also not included. This is also criticised by the TEG.[172]

  For activities with a blending-in of low-carbon gases in SCDR Annex I/II 4.29-4.31, each criterion 2. (b) no measures addressing upstream chain emissions are addressed at all. This means as long as some low-carbon fuel is blended in, methane leakage prevention is necessary at all - the activity is still sustainable and a substantial contribution to mitigation under the SCDR. Furthermore the leakage monitoring of the facility itself is not controlled by a independent third party. This lack of addressing upstream chain emissions, especially methane, is contradicting the recommendation of the TEG report and must be explained.[173]

  The fuel switch requirement does not limit emissions after 2050 either. By addressing only the output power post fuel switch with "low-carbon" gases, the requirements for fossil gases (SCDR Annex I/II 4.29-4.31, each

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[171] see meta study of the German Federal Institute for Geosciences and Natural Resources, p. 24: Gas shipped from US is emitting 1,3 % to 2,5 % of methane in the upstream chain, causing up to 168,75 g extra CO2e/kWh (438,75 g in total with 270 g direct output emissions added) https://www.bgr.bund.de/DE/Themen/Energie/Downloads/bgr_literaturstudie_methanemissionen_2020.pdf?__blob=publicationFile&v=2

[172] see TEG final report, p. 232: "Where the risk of fugitive emissions across the gas supply chain is seen as high, there is a requirement to provide a full life cycle assessment of fugitive emissions on ongoing basis"

[173] see TEG Final report, p. 205.

criterion 2. (a)) neglect the possible enormous GHG emissions in the upstream chain of producing these gases. If e.g. “grey” or “brown” H2 gases are used as a fuel, the upstream chain emission can be higher that just combusting fossil gas. The latter is possible even after the mandatory fuel switch in 2035 even until after 2050. All-in-all, none of the upstream chain emissions are not limited at no point in time at all, allowing unlimited Scope 3-Emissions indefinitely.

This is also a manifest error of judgement, as these factors would’ve needed evidentially to be addressed in order to fulfil the “transitional” term or at least it would’ve been mandatory to explain why the goals are reached anyways.

- The 550 kg CO2e/kWh is another alternative requirement to the 110 g CO2e/kWh threshold only applying to conventional electricity generation from fossil gaseous fuels (SCDR Annex I/II 4.29). It only takes into account the output power as an average of 20 years in no decreasing pathway either.

  This allows emissions even highly above the 270g CO2e/kWh criterion, which is also considered as the DNSH criterion by the Commission as well as even rising direct GHG emissions until the fuel switch. Also, after the fuel switch, only direct emissions are considered; through upstream chain emissions vast amounts of GHG emissions are even allowed after 2035 and 2050 (see also the precedent bullet point).

Not only do the design of the thresholds incentivise businesses to not comply with the SCDR criteria during the lifetime of the gas plants. The safeguards as specified also cause a risk of locked-in carbon-intensive assets (see in detail below on the basis of the Aurora report). This is also not compatible with the inherent meaning of “transitional” measures.

The Commission als appears to misunderstand the purpose of “transitional activities” as set out by the Taxonomy Regulation. The aim is to promote sustainable activities with pushing investments towards them. Even assuming that fossil gas activities as included in Annex I/II, Sections 4.29-4.31 are indeed needed for the transition (*quod non*), this does not automatically mean that the corresponding facilities and their operation must be promoted by means of the Taxonomy. There is no conclusive scientific evidence that additional investments in gas plants at all necessary.[174]

[174] Prof. Dr. Erik Gawel, economist and director of Helmholtz centre for environmental research, https://www.ufz.de/index.php?de=36336&webc_pm=57/2021 (8/30/22).

Including fossil gas, in result, creates additional gas plant capacity and leads inevitably to higher emissions from fossil gas plants as without the Taxonomy.[175] This will be shown in detail below on the basis of the **Aurora Report** in detail.

This effect has not been limited by the design of the TSC seeking to replace a carbon-intensive (coal) plant with a fossil gas plant, as no requirements are set out that define the latest point in the lifetime of the high-emitting plant.

Section 4.29 1 b)iii) (4.30 1.b) iv) only requires replacement, and does not set a limit, b) iv) only safeguards that the replaced capacity is not exceeded by more that 15%. and this is not required under 4.30.

59 GW coal-fired capacity in Europe is already due to be phased out by 2035.[176] It is highly likely that these plants or plants nearly at their lifetime limit will be replaced, reducing in sum near to no or no single ton of CO_2 at all. This evidently defeats the aim of the activity being "transitional".

This understanding is shared with the Platform. They criticized to

> *"use the idea of "transitional criteria" to accelerate the transition away from coal-fired energy." It "is a counterfactual approach to determining potential environmental performance (..). As such, (...) the TSCs for draft CDA activities that would attract finance, would not stand on their own in environmental performance terms relative to the environmental goals today. Transitional activities as defined in the Taxonomy Regulation are activities that must* ***still make a substantial contribution in their own right*** *while ensuring no-significant harm and not merely be part of a bigger system in transition."*[177]
>
> (emph. added).

The Commission does not address this at all. It also does not explain why fossil gas activities can be transitional activities irrespectively. As there is no apparent reason, this is raising serious doubts of the lawfulness of the assessment. Against this background, the result of the Commission to include these fossil gas activities is also arbitrary. Respecting the procedural requirement of "gathering all necessary expertise" acc. to Art. 23(4) and the principle of "conclusive base in science" in Art. 19(1)(f) would have very likely led to a different result.

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[175] see below (v), Aurora report p. 3.
[176] Platform, Response, p. 7,
[177] Platform, Response, p. 6.

(ii) Consistent with a 1,5 °C pathway or scenario

A further strict criterion for transitional activities is "the transition to a climate-neutral economy consistent with a pathway to limit the temperature increase to 1,5 °C above preindustrial levels, including by phasing out greenhouse gas emissions" (emph. add.), Art. 10(2) first half-sentence TR.

In order to comply with this criterion, scientifically sound climate scenarios or pathways need to be assessed, a 1,5 °C aligned one chosen and potential activities measured against this. The Commission fails to do all of this.

The TEG proposed a technology-agnostic threshold (100 g CO2e/kWh) based on scientific findings and based on a pathway that aligns to the EU's own political targets for future emissions reduction.[178] The Platform supports this approach as it finds that "this is the science-based threshold".[179] The latter explicitly recommends to not include the 270g- and 550kg-threshold.

The Commission chooses a threshold that is much higher than originally disapproved by the Platform since the corresponding values set in TSC (and thus in law) do not only follow a Paris-inconsistent pathway as set out above, but also do not ensure the DNSH criterion is upheld, considering a theoretical operating level for the most efficient future CCGT plant.[180]

It is important to note that both Commission, the TEG and Platform use a pathway reflecting the "well below 2 °C, preferably 1,5 °C" limit.[181] In contrast, the clear wording of the Taxonomy Regulation requires a 1,5 °C consistency for a transitional activity (Art. 10(2) first half-sentence – 1,5 °C) in contrast to a direct mitigation activity (Art. 10(1) first half-sentence TR – "long term goal of the Paris agreement").

Thus, **firstly**, since gas plants cannot fall under Art 10(1), the Commission used the wrong pathway benchmark, causing a manifest error of judgement. **Secondly**, the Commission did not set out any sound arguments against the suggested lower – but Paris consistent – scientifically recommended pathway of the TEG and Platform. The current SDRC TSC simply do not reflect the Pathway criterion. They lack a sound carbon neutrality goal and do not assign a GHG budget, thus depicting no pathway at all.

In addition, inclusion of gas plants in the Taxonomy does not cause a "phasing out of greenhouse gas emissions", as set out as a presumptive example this

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[178] see TEG final report p. 206 ff.

[179] see Platform, Response, p. 7.

[180] see Platform, Response, p. 8.

[181] this follows from the reduction values taken into consideration by the Platform, Response, (p. 8) and compared to Art. 2 and 4 EU Climate Law as well as explicitly stated from the TEG, Final Report, p. 206.

provision. In fact, gas capacity and resulting emissions will be increased due to the inclusion of fossil gas activities (see infra (v)(aa)(γ).

In sum, the Commission did not respect the outer limits of its delegated powers (consistent pathway alignment) and, in fact, did not take into consideration a scenario or pathway at all. It also caused a significant procedural error, as it arbitrarily ignored the assessment and advice by its official advisory board.

(iii) Technologically and economically feasible low-carbon alternatives are available (Art. 10 (2) Taxonomy Regulation)

Only activities for which there are "no technologically and economically feasible low-carbon alternative" existent can be included as transitional activities.

The **first** legal error is that the Commission does not comply with the delegation imperative of supplementing "paragraphs 1 and 2 of this Article by establishing technical screening criteria" in Art. 10(3). It does not take the decision initially opening its delegated power itself, but refers it to Third Parties:

The relevant requirements in the SCDR are to be found in Annex I, No. 4.29 1. (b)(ii); 4.30 1. (b)(iii); 4.31 1. (b)(iii) and in Annex II 4.29-4.31, which is referring to Annex I. Those requirements do not only set out technical screening criteria but rather delegate the required comparison of the respective activity against renewables to a "Independent Third Party" (SCDR Annex I, 4.29-4.31 second subpara). The Commission is not empowered to further subdelegate this assessment neither by the Taxonomy nor by Art. 290 TFEU.

This is not merely a compliance issue, even if the requirements of this "Independent Third Party" are rather vague. The criterion underlying this process is not determined by the law, in particular with respect to the "credible pathway". The Commission has not defined a pathway itself, rather it has rejected the pathway recommended by the Platform, and also uses the wrong benchmark for this exercise (temperature target).

Secondly, the Commission does not comply with the benchmarks set by the Taxonomy Regulation. From the clear wording of Art. 10(2) first half-sentence TR follows that only transitional activities can qualify as such for which there is no technologically and economically feasible low-carbon alternative available in general. A single plant cannot be assessed as to whether it supports the transition, as inseparable effects on the grid and other energy generation methods need to be evaluated.[182] This criterion does not refer to a single power plant, but to the EU energy market as expressed by the Platform, which points out, that

[182] see e.g. Aurora report, p. 8.

> "Many other feasible low-carbon renewable alternatives as defined in the first Climate DA (4.5, 4.6, 4.7, 4.18, 4.19, 4.22, 4.23) exist and are market-ready today. (…) low-carbon replacement options well exist in Europe in any case."[183]

In contrast, the wording of the requirements in SCDR Annex I, No. 4.29 1. (b)(ii); 4.30 1. (b)(iii); 4.31 1. (b)(iii) requires that no renewable alternative is available "for the same capacity". This contravenes the legal standard of the Taxonomy Regulation.

If taken by the plain wording, this criterion is also arbitrary, because it would cause every single plant to fail to meet Taxonomy eligibility (Annex I, 4.29-4.31). It is common knowledge that renewables in combination with storage facilities or installations, batteries, demand-side-response and/or smart grids are technically feasible today to replace the capacity of any gas plant in each subcategory of Annex I, 4.29-4.31 in theory.

Also, the Taxonomy Regulation does not require the renewable alternatives to be economically better performing than carbon intensive activities, but just to be being economically feasible at all – this is perfectly aligned with the general aim of the Taxonomy, pushing capital towards truly sustainable activities, which would otherwise not being promoted this strongly. The inseparable effect of making RE cheaper is an indirect effect, which is welcomed by the Taxonomy.[184]

Also, Art 10 (2) Taxonomy Regulation does not require the comparison to a most-economically alternative (as now required in the SCDR for 4.29-4.31), and does not require the alternative to be "more economic". The single benchmark for this is "economic feasibility", which may require high investments. This is aligned with the overarching goal of the Taxonomy: To lead investments to green and sustainable assets and investments. With the inclusion of fossil gas activities in the Taxonomy the opposite occurs (see infra (v)(aa)), making the alternatives to fossil gas not only an alternative, but also a preferable transition activity.

Thirdly, in the FCDR, the Commission implemented numerous alternatives to fossil gas plants. It is an open contradiction if on the basis of the SCDR those activities now need to be technologically and/or economically unfeasible compared to the fossil fuel activity.

Lastly, the Commission misinterprets the standard set by the Taxonomy Regulation, as the availability of technologically or economically feasible low-carbon alternatives is required. However, the Commission increases the

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[183] Platform, response, p. 33

[184] see e.g. Aurora report, p. 3.

benchmark of feasible alternatives "at a sufficient scale" (although green alternatives are readily available at low cost) [185]

(iv) GHG levels do not correspond to the best performance in the sector or industry (Art. 10 (2) a) Taxonomy Regulation)

(aa) Misinterpretation of the legal criterion

The Commission uses an interpretation of the wording "best performance in the sector or industry" in the first Climate Delegated Act that differs from the one in the SCDR.

The "sector" in which the best performance is mandatory is made to refer to specific technologies, e.g. a "gas sector" or a "nuclear sector", rather than the energy sector as a whole, where low carbon technologies are readily available at low cost.[186]

The whole sector and industry, not a specific "technology sector" or "industry", is intended to set the baseline under Art. 10 (2) a). Changing the baseline leads to a higher exclusion rate of alternatives. This is also the case here: Renewables and alternative flexibility technologies are simply excluded from the comparison, which would supersede the promoted fossil gas activities otherwise. This is not convincing and missing the criterion in Art. 10(2)(a).

Another error in law is that the Commission fails to even identify the best available performance for fossil gas activities.[187] Without a clear benchmark, no appropriate assessment is possible. The TSC is simply rendered void as opposed to the mandate given by the Taxonomy Regulation.

(bb) Neither threshold is actually best performance in sector, nor better than existing and future conventional gas plants

The TEG proposed a **100 gCO2e/kWh criterion** to decline in a 5 year rhythm until zero grams in 2050 is reached. This was defined as the adequate overarching, technology-agnostic sector threshold, explicitly applying it to fossil gas activities. As already shown above, it is science-based and respects the law framework.[188]

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[185] Platform Response, p. 5
[186] Platform, Response, p. 5
[187] Platform, Response, p. 5
[188] see e.g. infra (v).

In its TSC, the Commission fails to regulate the declining pathway of the threshold, rejecting in turn what the official advisory board states is a sufficient – not even best – performance threshold in the sector. It is evident from this that a "best performance in sector and industry" is not regulated in the SCDR.
This infringes Art. 10(2)(a) even more, as the TSC take into account life-cycle emissions for this criterion (SCDR Annex I, 4.29-4.31, 1.(a)), but doesn't implement any binding requirements regarding methane leakage detection and remediation outside of the facility itself. If supplier do not detect, report or repair leakages, the 100g requirement becomes nearly meaningless.[189]

The 270gCO2e/kWh criterion (SCDR Annex I 4.29 1.(b)(i) var. 1 and 4.30 and 4.31 1.b) ii) replaces the 100g criterion for all facilities until 2030 ("construction permit issued by 31.12.2030"). It is incompatible with the science-based sector threshold as described in the paragraphs above. In fact, this criterion is not reviewable under Art. 10(2)(a) Taxonomy Regulation. Indirect emissions are not addressed and do not need to be reviewed. As already stated, these emissions can make up an even higher amount than the direct emissions themselves.

Thus, it cannot be ascertained if fossil gas plants aiming for this criterion are exercising the best performance in a sector. If applied, the criterion essentially amends the legal requirements of Art. 10(2)(a) Taxonomy Regulation.

Additionally, Art. 10(2)(a) must be interpreted in the light of Art. 19(g) TR. According to the latter, the life cycle **must** to be taken into account, which the applicable TSC does not.

Moreover, this criterion distorts the energy market:

> *"It is highlighted that average emission intensity in the EU power market will have to drop significantly in the coming years and* ***was already in 2019 at 235 gCO2/kWh according to the IEA, and 215 g in 2020*** *. These already historical figures would indicate that a gas-fired power activity operating at the proposed 270g/kWh threshold, as it is already well below the grid average would be effectively worsening the grid average and yet could be labelled as Green. This would set poor precedents"*[190]

This also directly contradicts the aim of Art. 10(2)(a) TR, as it promotes the ***best*** performance and thus aims at lowering the market average emissions, creating pressure to other players to lower their emission values as well. The TSC thus actually allows a new or refurbished gas plant to receive the "Sustainable" label although it emits more per kWh that technically necessary - a result which can hardly be aligned with the aims of the Taxonomy Regulation as a whole.

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[189] see infra (v), indirect emissions could be manifold more than the threshold itself.
[190] see Platform Response, p. 28.

The 550kgCO2e/kW in 20 years criterion (only applicable to new installations, Section 4.29) in turn has no cap in the fossil fuel operation phase and therefore can miss the best sector performance by magnitudes. If other gas plants are taken as a comparison, their flexibility functionality must be the comparison aspect, as this is the only conceivable benefit of fossil gas plants. In this case, no performance against other gas plants or flexibility technologies is implemented at all, as no gram or operating hour cap is implemented. As the Platform has already stated:

> *"The 550kgCO2e/kW figures, without an annual cap in fact can allow a gas fired plant to run 3-4 times longer than the maximum (500 hours/year) allowed for a peaking plant. In many EU countries the modern gas plants are already running much less than those hours."*

This criterion allows for even worse performance in the sector than is best practice at present. This contradicts the legal requirement in Art. 10(2)(a) Taxonomy Regulation directly.

(v) Hampering the development and deployment of low-carbon alternatives (Art. 10(2) b)

Economic activities can fall under the transitional activity category, if they do not hamper the development and deployment of low-carbon alternatives.

According to Art. 10(2)(b) and (3)(a) Taxonomy Regulation, the SCDR should supplement this criterion with TSC. With the provisions in Annex I and II regarding fossil gas activities (4.29 to 4.31) the Commission fails to establish criteria that align with the legal requirements. Including fossil gas activities do "hamper", as will be set out in this section.

To understand how green flexibility activities and renewable energy (RE) are cut out from the energy market by including fossil gas activities into the SCDR, an assessment in four steps is necessary.

In the first step, it will be demonstrated that the inclusion of fossil gas in the Taxonomy leads to a lower levelized cost of electricity production (LCOE) for gas power plants and increase their profitability *ceteris paribus* (see infra [**aa**]) – as the Taxonomy aims for.

Secondly, it needs to be analysed how this affects the European power market, i.e. markets in Member States with capacity markets and markets in member states without (see also infra [**aa**]). The analysis undertaken in the **Aurora Report** shows, that in both market forms higher gas capacity is built out

compared to a situation without fossil gas inclusion in the Taxonomy (leading to higher CO2-Emissions in total than without including it in the Taxonomy).

Thirdly it will be shown, that the additional gas power plants built due to lower financing costs replace alternative low-carbon flexibility options and cause a higher renewable curtailment (see infra [**bb**]).

These results will be demonstrated on the basis of the **Aurora report (Annex 13)** and by considering a representative CCGT fossil fuel power plant.[191]

This results in Art. 10(2)(b) Taxonomy Regulation barring the inclusion of "Electricity generation from fossil gaseous fuels" under SCDR Annex I, 4.29.altogether and the same tendency can be shown for the other fossil gas activities in 4.30 and 4.31 of Annex I (all are referred to here as "fossil gas activities").

(aa) Taxonomy-desired effect applies to fossil gas activities

The intended Taxonomy effect is to lead capital flows to covered activities and assets. This actually will happen if the gas TSC are applied:

The inclusion of gas power generation in the EU Taxonomy means that it becomes easier for project developers of gas assets, which meet the Taxonomy criteria to raise capital (debt and equity). The reason is that the classification as "environmental sustainable" under Art. 3 TR allows access to broader financing options, as the demand for sustainable investment options is growing. One reason for this is that the *increasing commitment* to net zero targets make banks and investors favour sustainable investments to reach their individual goals.[192]

As a result, the weighted average cost of capital (WACC) of gas power plants is lower. Lower financing costs reduce the levelized cost of electricity production (LCOE) for gas power plants and increase their profitability *ceteris paribus*. Thus, there is a nexus between WACC and LCOE. The LCOE of an exemplary combined-cycle gas turbine (CCGT) power plant in the German market would be 4 % lower if the WACC decreased from 12 % to 9 %. The assumption that lower WACC leads to lower LCOE holds in general, not only for this specific asset.

see in Detail: Aurora report, p. 3-4.

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[191] see Aurora report, p. 3 for the details of the exemplary power plant.

[192] Net-zero commitments in the financial sector are increasing. At COP26, financial institutions with more than US$130 trillion in assets under management committed to reaching a state of net-zero before 2050, see https://sciencebasedtargets.org/net-zero-for-financial-institutions (8/30/22).

(aaa) Power market without capacity markets

A number of member states maintain a power market without a capacity market mechanism, e.g. Germany.

In general and in those markets, for fossil gas assets, lower interest rates on annualized capital expenditure (CAPEX) result from a lower WACC. This leads to a higher net present value than the profit requirements for fossil these assets. Basic market principles demand establishment of a new equilibrium in this situation. This mechanism also triggers additional build-out of gas capacity. As a result, more gas capacity lowers expected profits because of price cannibalization between gas power plants. A new, higher level of capacity will be reached once the profit requirements again match expected profits.

This relation is shown below in Fig. 3:

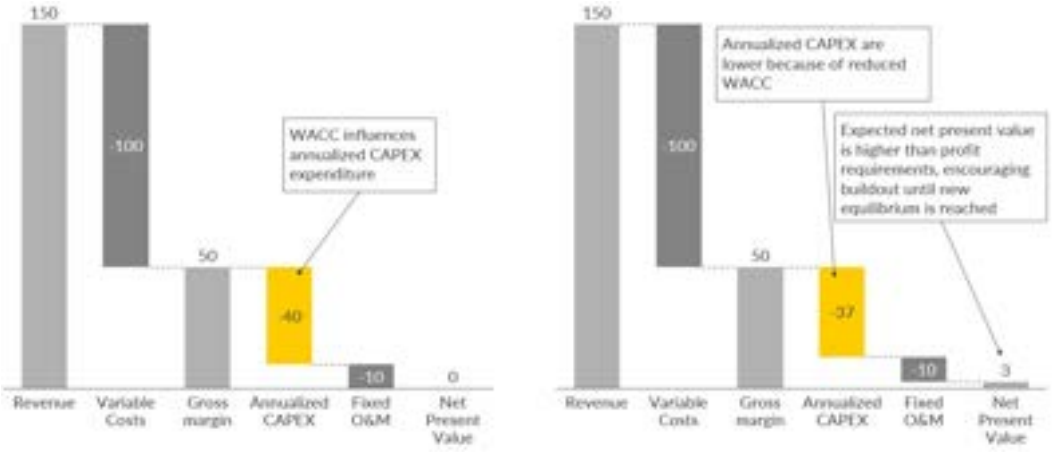

Figure 4: Cost and revenue streams of an exemplary gas plant in the energy-only market with higher WACC (left-hand side) and lower WACC (right hand side), in EUR/kW p.a. Source: Aurora report, p. 5.

see in Detail: Aurora report, p. 4-5.

(bbb) Power market with capacity markets

A number of EU member states have capacity markets in place, e.g. Belgium, France and Poland. The general underlying principle of price formation works through clearing supply and demand, which in turn is based on competitive bidding.

The impact of the inclusion of gas plants in the Taxonomy on the LCOE of gas-fired power plants via lower capital costs is the same as explained as above: a lower cost of capital decreases the annualized CAPEX and hence the LCOE.

Lower WACC however means that operators of gas-fired power plants require lower capacity market revenues to achieve the required profit level. Because of the reduced WACC, the gross margin which needs to be achieved by the gas

plant to maintain the required profit level is lower. Therefore, the plant operator has a tolerance for lower capacity market revenues.

This is visualized in figure 5 below:

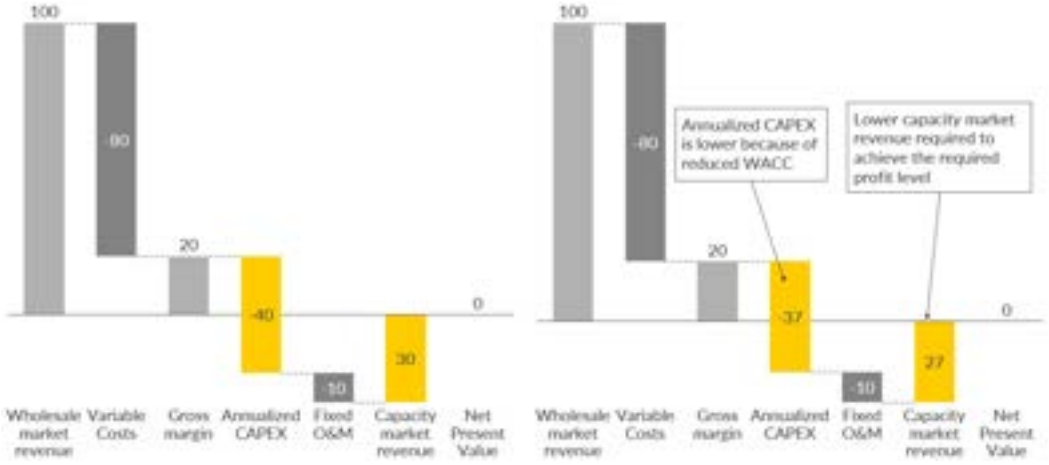

Figure 5 Cost and revenue streams of an exemplary gas plant in a country with capacity market depending on the WACC level (lower WACC on right hand side), EUR/kW p.a. Source: Aurora report, p. 6.

This affects the bidding behaviour in capacity auctions. In an assumed capacity market without fossil gas inclusion in the Taxonomy (lower tolerance for lower capacity market revenues), the gas power plant capacity is not procured because its bid is higher than the clearing price set by the next cheaper project of an alternative technology.

Lower financing costs for gas activities stems from the inclusion of fossil gas activities to the Taxonomy. The bids of all other technologies are held constant, but an assumed gas project bids in with a lower price due to its reduced minimum revenue boundary compared to the scenario in the foregoing paragraph. Here, the bid of the gas power plant is now lower than that of the project which formerly secured the last successful bid. This means that the gas power plant capacity moves up the merit order and is procured in the auction.

see in Detail: Aurora report, p. 5-7.

This is demonstrated in Fig. 6 below: The chart on the left-hand side outlines an exemplary auction under a scenario in which gas activities are not listed in the Taxonomy. In the auction sketched on the right-hand side, the effect of the lower financing costs for gas activities is simulated.

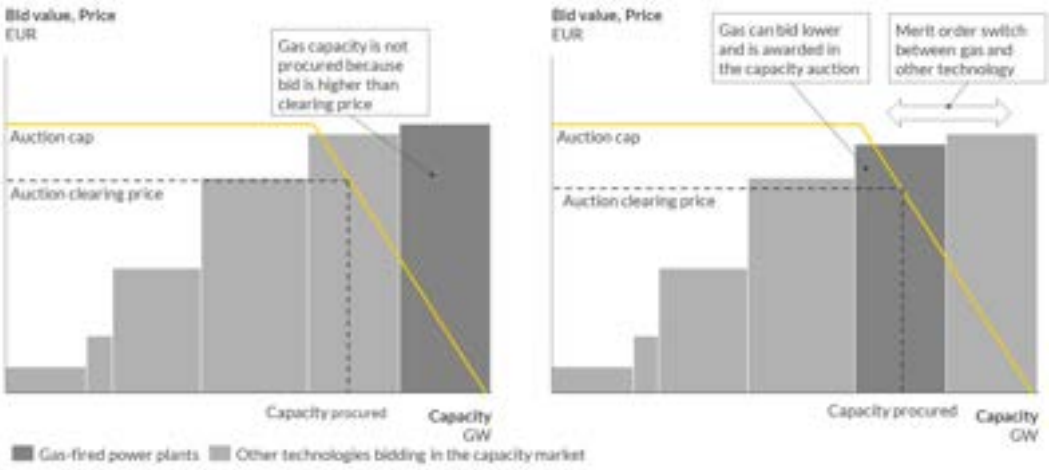

Figure 6: Exemplary capacity market auction results under a high WACC assumption for gas activities (left-hand side) and a low WACC assumption for gas activities (right-hand side) Source: Aurora report, Annex ##, p. 7.

(ccc) Interim result

The Taxonomy aim of leading finance flows to Taxonomy labelled activities via lower WACC and lower LCOE is demonstrated as true for fossil gas activities; irrespectively of the market design. This results in more capacity in gas activities over the whole of Europe.

This (naturally) leads to more GHG emissions than without the inclusion in the Taxonomy. This is also not limited due to the requirement of replacing a carbon-intensive plant with that fossil gas plant (SCDR Annex I, 4.29 1. (b) (iii), (iv), (vi); 4.30 1. (b) (iv), (v), (vii); 4.31 1. (b) (iv), (v), (vii)). No requirements are set out in that Annex that define the latest point in the lifetime of the high-emitting plant for its replacement. 59 GW coal-fired capacity in Europe is already due to be phased out by 2035.[193] It's highly likely, that these plants or plants nearly at their lifetime limit will be replaced, reducing in sum near to no or no single ton of CO_2 at all.

(bb) Replacement alternative flexibility activities

A higher share of fossil gas power plant capacity will exist in the market due to the Taxonomy "label".

As shown in Fig. 6 in the Aurora report. p. 7 and p. 8, the share of intermittent renewables in the European capacity will increase strongly to reach climate neutrality in 2050. Sufficient flexibility in the power system is needed, therefore leading to the rise of flexibility technologies.

[193] Platform, Response, p. 7,

Fossil gas activities have the capacity to act as a source of flexibility in the power system. Besides those, alternative flexibility technologies such as storage, batteries, and demand-side-response are available.

As the inclusion of fossil gas activities will result in a higher share of gas activities in the energy market, fossil gas turbines will displace other (non-GHG emitting) flexibility technologies. Those alternatives therefore account for a smaller share in the flexibility mix.

see Aurora report, p. 8

Those flexibility alternatives are covered by the transition comparison test set out in Art 10(2)(b) Taxonomy Regulation. This provision does not specify "alternatives" limited to one function of the economic activity. The facts above already lead to the incompatibility of the current TSC on gas in the SCDR with Art 10(2)(b) Taxonomy Regulation, as they hamper the deployment of alternative flexibility and thus low carbon alternatives.

This is even more striking as the flexible character of gas plants are the only aspect which could make them potentially eligible under the "transition" legal term.

If gas activities were not included in the Taxonomy, incentives to increase the *flexibility* of the power system would remain stronger. This is caused by the increase in renewable energy in the EU energy mix certain to happen anyways. The needed flexibility would thus have to be built anyway, too. However, gas power plants would not have the advantage of lower financing costs.

Consequently, the technologies providing flexibility would be more diversified, and gas power plants would represent a smaller part of the total system flexibility.

see Aurora report, p. 8

This means that the additional gas power plants built due to lower financing costs replace alternative low-carbon flexibility options. This is true both in energy-only-markets and in markets with a capacity market:

In an **energy-only-market**, additional gas assets will shift the merit order. With a higher gas capacity in the system, more electricity generated by gas power plants is available in hours with scarce renewable production in which prices are high. The additional power supply from gas plants pushes more expensive technologies such as demand-side-response out of the merit order and thereby lowers the price in those periods. As a result, other flexible technologies such as storage plants whose business model is based on wholesale market arbitrage (charging in low-price hours and discharging in high-price hours) will see revenues go down, disincentivizing their build-up.

see Aurora report, p. 8-9

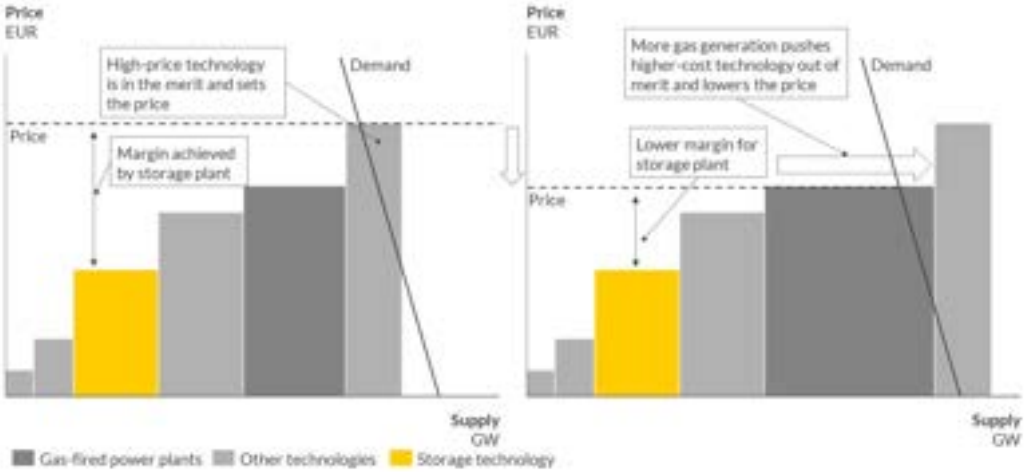

Figure 7: Merit order and price formation in the wholesale market in a system with lower gas capacity (left-hand-side) compared to a system with higher gas capacity (right-hand-side) Source: Aurora report, p. 9.

In a **market design with a capacity market**, technologies compete directly against each other, and the lower revenue requirement of gas power plants can cause a merit order switch in the capacity auction, equivalent to the graph in supra Fig. 7 (Fig. 5 in Aurora report).

see Aurora report, p. 9

Not only the increasing GHG emissions are an unfavourable result of this coherence.

Replacing alternative flexibility techniques only because of financial advantages cuts out specifically needed or preferred functions of these alternatives. While gas power plants can provide nearly continuous additional power in case of low renewable production, they cannot absorb power from the system in hours in which renewable production surpasses demand. Lithium-Ion-batteries on the other hand can do the latter but have limited storage durations of only up to a few hours. For this, storages can jump in. Demand-side-response is another tool to provide specific flexibility. However, the latter alternatives to fossil gas activities work without direct CO_2-emmissions.

c.f. Aurora report, p. 9

In sum, promoting fossil gas activities in the Taxonomy, the development of GHG neutral flexibility technologies is hampered, as less expected market share not only leads to less investments in the construction and deployment of these flexibilities but also into the development. The deployment is also directly

hampered with this, as the declining revenues of flexibility alternatives is disincentivizing their build-up.

c.f. Aurora report, p. 9

(cc) Curtailment of renewables

As shown in the paragraph above, the inclusion of certain gas activities in the Taxonomy leads to a higher share of the power system's flexibility requirement to be provided by gas power plants. This does not only affect alternative low-carbon flexibility technologies, but also renewables.

As also stated under supra (bb), the different flexibility option serve different purposes. Green flexibility alternatives can quickly provide power in moments of scarcity. The same is true for gas power plants. However, flexibility also plays an important role in moments of high (renewable) power production. In order to absorb the high amount of renewable energy, the system needs flexibility on the demand side, for example through batteries, storage and demand-side-response. Gas power plants cannot provide this kind of flexibility.

see Aurora report, p. 9

A battery charges in low-price hours typically characterized by high or even excess renewable generation. At a later point, the battery can inject the stored electricity during a high-price window, in which renewable generation is low. Based on the same logic, demand-side-response allows to shift demand to hours with more renewable production and therefore cheaper prices, aligning consumption with the physical needs of the power system.

see Aurora report, p. 10 and fig. 8.

Consequently, these alternatives allow avoidance of renewable energy curtailment, as the high or excess energy generation can be absorbed (in contrast to gas facilities) or the demand can be synchronised with the production. A higher share of the semi-flexible technology of fossil gas activities would therefore cause more renewable curtailment. More renewable curtailment means less capacity demand of them, leading to less investments in renewables (and in turn: many locked in gas plants, see directly below).

Another result of this curtailment is its impact on price formation.

In contrast to gas assets, alternative flexibility technologies provide flexibility in hours of high renewable production and thus low power prices. In turn, they represent additional demand in times of high renewable production and thus stabilize the low-price periods. This in turn is positive for renewables, as it hedges the risk of extended low-price periods.

see Aurora report, p. 10

This additional price effect favouring renewables is lost, if the gas plant induced renewable curtailment happens. This not only is hampering the economic feasibility of renewables (adding another risk factor regarding the lock-in of gas plants and contravening the intention of Art. 10(2)(a)). It also hampers the development and deployment of renewables according to Art. 10(2)(a). The moderated low-price periods and hence the better profit prospects would incentivize the build-up and therefore as well the development. With longer low-price periods, investing in development and deployment of renewables is less attractive.

see Aurora report, p. 10

This aligns with recent findings Aurora Energy Research made. The published "Prospects for Long Duration Energy Storage in Germany" quantified the impact of Long Duration Energy Storage (LDES) on renewable curtailment in a net zero power system in 2035 (Germany). It highlights a case in which alternative flexibility in form of long-duration storage of 15 GW is added to the power market and compared to a power market with out this capacity.

The strong differences are illustrated in Fig. 8 below:

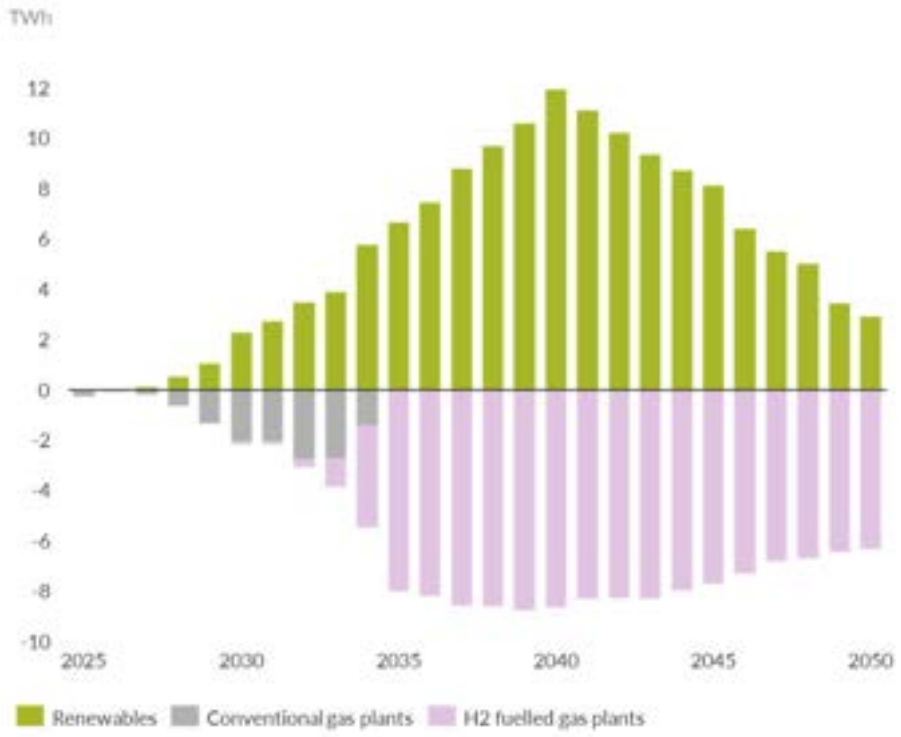

Figure 8: Electricity production delta between the LDES and the Baseline Scenario in TWh. Source: Aurora report, p. 11.

A vast amount of both fossil gas and H2 fuelled plants is avoided and at the same time additional renewable yield up to 12 TWh is expected.

The Aurora institute observed three main effects from the introduction of LDES to the power system:

1. Higher renewables utilization: LDES absorb renewable electricity by charging in hours in which renewables production exceeds demand; **curtailment can be reduced by up to 30%**

2. Lower natural gas use: LDES discharge in high price hours and thereby reduce the amount of electricity generated by conventional gas plants as well as the CO_2 emissions caused in the process

3. Lower need for hydrogen in the power sector: After the transition from natural gas to hydrogen, LDES lower the amount of power generated by H_2-fuelled plants, which translates to a 13% reduction of hydrogen use in the power sector. This reduction decreases Germany's H_2 import dependence and mitigates risks in case of H_2 procurement bottlenecks

see Aurora report, p. 11

This reaffirms the finding stated in the first part of supra (cc). A higher share of alternative low-carbon flexibility technologies in this case study leads to less renewable curtailment as well.

see Aurora report, p. 11

Regarding the avoided H2 plants, additional energy efficiency is implemented to the power system, as the direct use of renewable power has a significant higher coefficient of power than using the same power from (H2) gas plants. In turn, resource intensive H2 plants tend to be locked-in with the current Taxonomy design, as the gas LCOE is "artificially" lower.

To sum up, not only are alternative flexibility technologies hampered by the inclusion of fossil gas activities into the Taxonomy, but renewables themselves are, too.

(dd) Interim result to (v)

On the factual side the RIR has shown:

- Inclusion of fossil gas activities in the Taxonomy leads to lower WACC and LCOE regarding this power generation technology.

- Lowering these factors means more fossil gas capacity build-out, irrespectively of the market design, over the whole of Europe
- Including fossil gas in the Taxonomy impedes the development and deployment of GHG-neutral flexibility technologies. Their build-out is disincentivized by this Taxonomy design
- Curtailment of renewables is significantly higher in case fossil gas activities are included in the Taxonomy compared to their inclusion
- This Renewable curtailment institutes significant handicaps in the development and deployment of renewables, also causing numerous lock-in risks and less energy efficiency in the power system

On the legal side, a strong obstacle for the transition with numerous negative effects regarding the development and deployment of low-carbon alternatives has been deduced. The criterion of "hampering" in Art 10 (2) subpara 2 b) Taxonomy Regulation is positively met, make fossil gas activities Taxonomy-ineligible:

Art. 10(2)(b) sets an objective negative test: if an activity "hampers" low-carbon alternatives it is automatically excluded and not Taxonomy eligible.

As shown above, a more than significant hampering can be identified here, due to the numerous factors putting obstacles to the transition pathway as well as the dimensions of single effects.
The Commission failed to assess the points made above.

It would have been necessary to identify the desired effects and to provide concrete quantified data according to Art. 19(1)(f) Taxonomy Regulation. Explicitly for Art. 10, the standard of evidence is set out by Art. 10(2) subpara 2: "For the purpose of this paragraph and the establishment of technical screening criteria pursuant to Article 19, the Commission shall assess the potential contribution and feasibility of all relevant existing technologies."

The RIR has shown, that the science the Commission might have used for their assessment cannot be conclusive, as it did not show or address the demonstrated effects set out in the **Aurora Report**.

Thus, substantial evidence liable to raise serious doubts as to the lawfulness has been presented. The relevant procedural rules especially regarding the fact gathering and assessment process have not been complied with (Art. 23(4), 19(1)(f), Art. 10(2) subpara 2) Taxonomy Regulation, and because of the arbitrary character of the Commission's decision, their compliance would have very likely led to a different decision. The facts that the Commission should have assessed (material provided by TEG and Platform) and their statement in the SCDR-draft are not capable of substantiating the conclusions drawn from it.[194] In

[194] Case C-389/10 P, KME vs. Commission, EU:C:2011:816, para 121

turn, there are facts the Commission has **not** assessed, so that it has not taken into account key relevant factors.[195] By misunderstanding legal term "transition" and the corresponding benchmarks, the Commission based its analysis on an irrelevant factor, as shown above.[196] Lastly, supporting evidence fails to satisfy the standard of proof, not at least as this needs to be conclusive (Art. 19(1)(f), but already no in-depth supporting evidence is apparent.[197]

(vi) lock-in-effect of carbon-intensive assets

A transitional activity under Art. 10(2) Taxonomy Regulation can only qualify as such, where that activity does not lead to a lock-in of carbon-intensive assets, considering the economic lifetime of those assets, according to lit.(c) .

First, this provision requires the consideration of the "economic lifetime". In accordance with Art. 19(1)(g) Taxonomy Regulation, the life cycle also has to be taken into account, by considering both the environmental impact of the economic activity itself and the environmental impact of the products and services provided by that economic activity, in particular by considering the production, use and end of life of those products and services.

For the review regarding the lock-in effect, this means that the lock-in must be in an adequate proportion to the lifetime of the fossil gas activity. This will be pointed out below, where relevant. Additionally, only carbon-intensive assets are to be considered. This, regarding all types of gas plants (SCDR Annex I, 2.49-4.31), is the case with all CO2e limits set out for them. As already shown above, no limitation of upstream chain emissions are implemented and the methane leakage requirements only apply to the plant itself, while a large amount of leakage happens elsewhere. In many cases, the proposed threshold might result in higher emissions than conventional unabated gas fired power.[198]

This view is confirmed by the Platform's and the TEG's view.[199]

Thus, all of the plants complying with Annex I, 4.29-4.31, are eligible as and likely are carbon-intensive assets based on their upstream emissions alone. Again, this cannot be assessed by the TSC provided by the SCDR, which contravenes Art. 19(1)(f) Taxonomy Regulation.

Moreover, the 100g CO2e/kWh and the 270g CO2e/kWh thresholds are so high, that they cannot be met today. It is not clear when fuel blending or abatement

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[195] see Case C 27/76, United Brands v. Commission , EU:C:1978:22, paras. 252 256.
[196] see Case T 342/99, Airtours v. Commission , EU:T:2002:146, , 211 215.
[197] see Case T-210/01 General Electric Company v Commission, EU:T:2005:456, paras 70-73.
[198] Platform, response, p. 29.
[199] Platform, response, p. 7, 29-31, 33; TEG, final report, p. 232

technologies are operational in a large, profitable scale. Additionally, the cumulative impact of blending[200] is unknown. Those thresholds are highly speculative (see below dd). Thus also with respect to their onsite emissions, the promoted fossil gas activities are carbon-intensive assets.

A lock-in of those assets will indeed occur due to numerous reasons.

To correctly assess this, the economic definition of the *lock-in effect* or also named as *Path dependence* will be presented:

Puffert describes Pathway dependency, "locked-in" as

> *"the dependence of economic outcomes on the path of previous outcomes, rather than simply on current conditions. In a path dependent process, "history matters" — it has an enduring influence."*[201]

As per the meaning of the wording of "lock something in" or "lock-in", something is held and kept in a place, not being able to leave that place or state, mostly due to a single choice in the past.[202] After *Puffert*, a constituent criterion is the rise of "switching costs" resulting from "quasi-irreversibility of investment."

Against this background in the context of the Taxonomy, a lock-in of carbon-intensive assets means that the inclusion of certain activities and therefore lower WACC leads to certain degree of irreversibility of this GHG-intense inclusion and the newly aligned financial flows.

In other words, assets are not Taxonomy-eligible, if they lead to significant GHG emissions in the future, that could have been prevented by choosing more flexible assets with less switching barriers, that do not inherently limit the switch to alternative assets with a lower carbon footprint at any given time in the future. Significant GHG emissions arise, when those are significant compared with the lifetime emissions of the asset.

(aa) Lock-in effect from CO2 limits

As the 100g CO2e/kWh and the 270g CO2e/kWh are no realistic values, as there are no existing gas plants that can be included in a representative modellation. Consequently, to assess a possible lock-in-effect, the **Aurora Report** focused on the 550 kg CO2e/kWh /20 years target. This is analysed this with a representative profit-maximizing gas asset. All the requirements of the Annex I, 4.29 are assumed to be met, including the fuel switch in 2035 and accordingly behaviour. No upstream value chain emissions are considered. The German market is taken

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[200] Platform, response, 29.
[201] Douglas Puffert, University of Warwick, https://eh.net/encyclopedia/path-dependence/ (8/30/22).
[202] https://dictionary.cambridge.org/de/worterbuch/englisch/lock-in ((8/30/22).

as the example market and a scenario is chosen that reflects what Aurora's market experts consider to be the most likely developments in the power market and the wider economy until 2050.

see Aurora report, p. 12 f. for details

The result of this modelling exercise is that under profit-maximizing dispatch behaviour, a gas-fired power plant with a realistic market entry in 2028 and fuel switch at the end of 2035 would not comply with the 550 kg CO2e/kW emission limit criterion set out in the EU Taxonomy. This finding is robust to using an alternative assumption setup, the Aurora Net Zero Scenario, that assumes a Net Zero power system in Germany to be achieved by 2035.

see Aurora report, p. 13-15

The reason for the failure to meet the 550 kg CO2e /kW criterion is that the profit-maximizing utilization of the power plant during its conventional operation phase and the resulting amount of CO2 emissions are so high that the average emissions per unit of capacity over the lifetime are still above the threshold even after 12 years of emission-free operation:

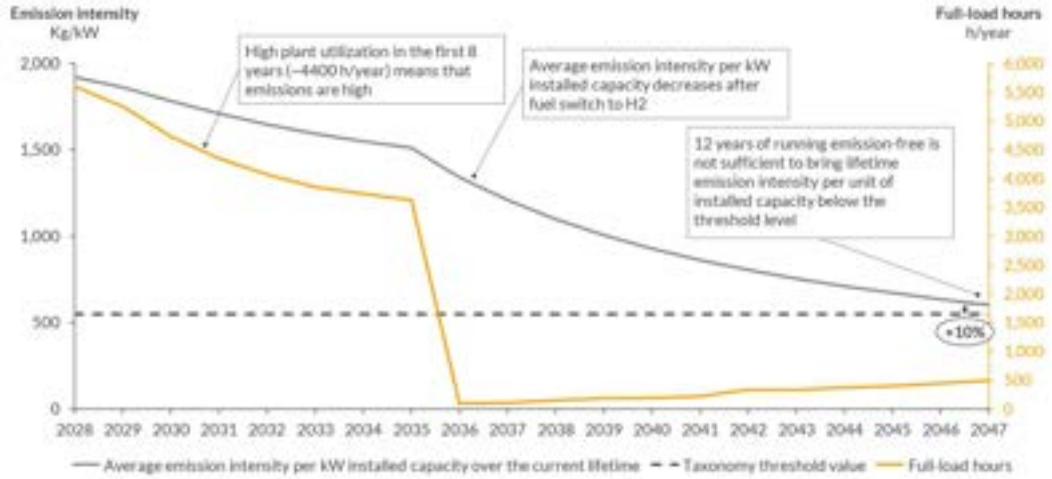

Figure 9: Average emission intensity per kW of installed capacity over the lifetime and full-load hours of a gas plant with profit-maximizing dispatch schedule in the Aurora Central Scenario for Germany. Source: Aurora report, p. 14, fig. 10, also note footnote 13 on p. 13..

No methane leakage during the fossil combustion phase and upstream value chain emissions are included in this modelling. As already stated, this can lead to higher emissions than directly combusting conventional fossil over the whole lifetime,[203] the modelling follows ideal assumptions that most likely cannot be met in reality. Including it, would rise the *delta* between the 550 CO2ekg/kW average in the end of 2047 by magnitudes.

[203] see Fn. 171. s.Fn. 171.n. 171.

The same applies to the modelled scenario on pages 15-16 in the Aurora report with a later market entry in 2031. The average emission intensity value will be significantly higher modelled alone with the output emissions and under the assumption, that the fuel switch in 2035 will de facto take place.

The latter is, at least highly controversial (see **Aurora report**, p. 14 and 16). Additionally, green hydrogen will remain significantly more expensive than natural gas in the medium term, further incentivizing a turning away of the gas plant operator from the Taxonomy labelling.

Because of these uncertainties, a delayed fuel switch is also taken into consideration in another modelling. Market entry takes place in Germany in 2028 and an operating period of 20 years is assumed. In contrast to the previous analyses, the plant only undergoes a fuel switch to hydrogen at the end of 2040, instead of 2035.

see Aurora report, p. 16

In this scenario the average emissions per unit of plant capacity would stand at 870 kg CO2e /kW at the end of the plant lifetime, almost 60% above the threshold value. The total lifetime emissions per kW of the plant would amount to 17 tons instead of 12 tons in the case of a fuel switch at the end of 2035. A delayed switch to lower carbon gaseous fuels would therefore pose a significant risk to the achievement of climate targets, as the following graph illustrates:

see Aurora report, p. 16

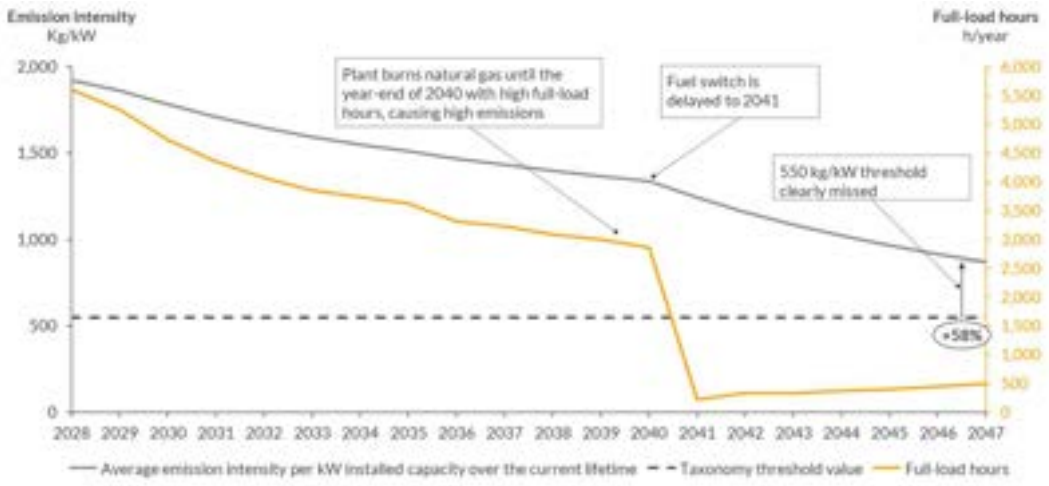

Figure 10: Average emission intensity per kW of installed capacity over the lifetime and full-load hours of a gas plant with profit-maximizing dispatch and delayed fuel switch to hydrogen in 2040. Source: Aurora report, p. 17 fig. 13.

As shown above, the 550 kg CO2e/kW emission limit is not always met, given a profit-maximizing approach while still meeting the Annex I conditions. Additional uncertainties and vast amounts of indirect emissions intensify this problem.

While there is no realistic business-case that follows the Taxonomy criteria strictly, pushing additional investments towards fossil gas combusting energy plants (4.29-4.31) thus already either creates stranded assets, or, by letting those plants start operation, locked-in assets are caused which are carbon-intense all the time.

The lock-in derives from the allocated investments that the operator seeks to amortize. Those investments are locked-in and the gas plant has a path dependency, because the capital cannot be allocated to alternatives. This effect will arise due to energy market price effects that were shown above under (v). It was shown above, that the inclusion of fossil gas activities lowers their WACC as well as their LCOE and also prevents possible lower prices for renewables. Consumers will rely on gas capacity that is higher than in a Taxonomy excluded scenario, making switching harder and displacing renewables from or hindering them to enter the market. On top of this, in the most likely scenarios, not even the Taxonomy CO_2 threshold will be met in this case.

Several stakeholders voiced their concerns in the course of the development of the SCDR that the methodology of calculating the emissions as an average over 20 years for the 550 kg CO2e/kWh criteria could lead to gas assets "front-loading" their production and emissions. This means that the amount of CO_2 emitted until the fuel-switch is so significant that average emissions are not reduced enough in the period of emission-free operation to meet the limits specified in the Taxonomy at the end of the lifetime. According to the Aurora report, this materializes, it would essentially constitute a lock-in.

see Aurora report, p. 12

Exactly this has been demonstrated above. Note again that it is highly likely that an ideal gas plant operator would not follow the criteria of the SCDR as the economic disadvantages proceed to materialize (see infra [dd]).

(bb) Lock-in effect caused insufficient Taxonomy safeguards for the operation phase

The Taxonomy Regulation contains no safeguards to ensure compliance with the criteria over the whole lifetime of the fossil gas activities. This - as a stand alone problem - creates a high risk of a lock-in effect of carbon-intensive assets: While most of the capital is needed in the construction phase of a fossil gas plant, none or little is needed during the operational phase, e.g. for maintaining the facility. The label "environmentally sustainable" however is afforded and verified at the beginning of the project.

The worst case here is also the most likely scenario: Operators either just refrain from using the Taxonomy label after starting operations or are "front-loading" their full-load hours into the first years of operation, still aligning to the SCDR (average 550 kg CO2e/kW criterion) and dropping the label when the fuel-switch is due. This is even more likely if the project aimed originally for the other two thresholds (see infra cc).

The Platform criticised exactly this shortcoming of the SCDR Annex I 4.29-4.31 design:

> *"There are several usability issues for financial markets from these limitations, but the key issue is that all performance improvements for the financeable facility would only occur in future years (2026, 2030, 2035 or after) even though Taxonomy alignment of the activity would be recognised immediately. For example, if the plant has been financed as taxonomy aligned via sustainable finance instruments but fails to achieve the improvements, it would not be possible re-classify the already invested funds as not taxonomy aligned retrospectively."*[204]

The Commission fails to assess and address this. This is a manifest error in judgement. Numerous possibilities could and should have been implemented as a safeguard for this issue. This is even more a necessity, as this issue bears the potential to counteract the Taxonomy goals.

For instance, a further criterion in the Annex I TSC could have required the following mandatory clause in the operation permission: The operator must detail its application for permitting in a way that complies with the thresholds and, must agree that if such are met, a temporary suspension or revoking of the permission is the legal consequence. This is conceivable as a mandatory clause in the investment contracts, but with less certain legal consequences. Also, penalties for misalignment could have been implemented. Such a penalty provision exists with Art. 22 TR, but the infringement of misalignment with Art. 3 TR after being labelled or even misreporting after Art. 8 TR are not included.

This issue is not solved due to the Independent Third Party review clause (SCDR Annex I 4.29-4.31 No. 1 subpara 2). No direct consequences arise, if the Independent Third Party observes infringements.

(cc) Lock-in effect due to speculative assumptions

The criteria in the SCDR Annex I, 4.29-4.31 rely on highly speculative assumptions. For instance, there is a dependency on the availability of low carbon

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[204] Platform, Response, p. 8.

fuels to meet the performance criteria.[205] Uncertainties exist if a full fuel switch by 2035 is technically and economically feasible when considering uncertainties around the availability, price, and transport infrastructure of green hydrogen.[206]

The 100 gCO2e/kWh threshold is not technologically and economically achievable now or in the near future with the activities promoted in SCDR Annex I 4.29-4.31.[207] It is not achievable with unabated fossil gas combustion. At the same time, abatement and sufficient fuel blending is not technologically and economically feasible now or in the near future. The same is true for full H2 plants, which are also not technologically and economically feasible now or in the near future in adequate scales, (mandatory) taking into account the upstream value chain emissions and cost in this case (SCDR Annex I 4.29-4.31 each 1. (a)).

Yet, financing fossil gas activities with a Taxonomy label can start after the 1st of January 2023.

The same dilemma as above arises from these investments: Either the assets are stranded if built with respect to the 100g criterion or the operator will just revoke their decision to operate Taxonomy aligned.

Similar considerations apply to the 270 gCO2e/kWh threshold, even omitting taking into account indirect emissions. For instance, the theoretically most efficient future CCGT plant ("extreme high efficiency") ranges at an operation level of 316 gCO2e/kWh at minimum, just direct emissions.[208] A typical conventional CCGT is currently operating at 350 gCO2e/kWh (according to IPCC AR5 WG3 Annex III, 2018).[209] As the 270 gCO2e/kWh is not taking into account the indirect emissions, operators that commit to this criterion are creating a very high risk to climate change mitigation. The same lock-in applies as stated in the foregoing paragraph, with even higher emissions locked-in due to the not covered indirect emissions. In addition, taking into account the revised EU gas directive proposal COM (2021)803, plants are likely to never undercut the maximum pathway set out in that directive.

Both criteria should have contained at least an entry into force in the future date, when sufficient evidence is available that the requirements can be met. Above that, at least the 270 gCO2e/kWh should be readjusted as it allows for emission intensities that significantly harm the climate change mitigation goal, see below.[210]

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[205] Platform, Response, p. 8
[206] Aurora Report, p. 16
[207] see e.g. TEG Final Report, p. 232.
[208] Platform, Response, p. 8, 24.
[209] see Platform, Response, p. 24 f.
[210] see Platform, Response, p. 24 f.

The 2035 fuel switch criterion is very risky regarding the lock-in effect, because it regulates far into the future and is highly speculative with regard to compliance.[211] In addition, the business cases which would be eligible to these criteria are not realistic, as the operators – after a likely "front loading" regarding the 550 kg criterion – would have to forgo high profits after 2035 just to maintain the Taxonomy label, which is no longer useful. High profit chances are missed mainly because green hydrogen will remain significantly more expensive than natural gas in the medium term.[212] A sharp decline in productivity would be the consequence. Thus, there is a very strong incentive to continue full load operation after 2035. This effects a lock-in of a carbon-intensive asset.

(5) No enabling activity (Art 10(1) i)

The gas activities (Annex I and II) are not eligible under Art. 10(1)(i) Taxonomy Regulation as they are no climate change mitigation enabling activities in accordance with (Art. 10(1) lit (a) to (h)).

In any case, in order to qualify as an enabling activity, of Art. 16 Taxonomy Regulation would apply. The gas activities do not meet the requirements set out in Art 16 Taxonomy Regulation.

(aa) Base criteria of Art. 16 Taxonomy regulation

Under Art. 10(1)(i), Art. 16 Taxonomy Regulation both requirements in lit. (a) and (b) of this provision must be met cumulatively ("and").

According to Art. 16 (a), economic activities cannot be included in TSC if they lead to a lock-in of assets that undermine long-term environmental goals, considering the economic lifetime of those assets.

As shown above under (4)(vi), numerous implications of the inclusion of fossil gas activities (SCDR Annex I, 4.29-4.31) will lead to a lock-in effect. This is most relevant for conventional CCGT gas plants, but will also be the case with the other energy generation facilities that use gas as a energy carrier (4.30-4.31). As those assets are carbon-intensive, they are at the same time undermining long-term environmental goals (the EU's climate targets and Art. 2 Paris Agreement).

Art. 16 (b) is not met for the same reasons. Preventable harmful CO2 emissions are emitted and the development of a renewable energy market is hampered. The Commission failed to indicate any positive impact of the promotion of Gas Plants (4.29-4.31).

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[211] see above Aurora

[212] Aurora report, p. 13, Fn. 14.

Furthermore, a variety of arguments exist indicating a negative environmental impact over the whole lifecycle of the gas activities included in the SCDR, irrespectively of combusting fossil or "renewable" gas in the sense of the Taxonomy regulation.

First, for all new gas activities, soil will be sealed and environmental disturbances caused during construction and operation, as the plants are mostly built outside of highly anthropogenic shaped areas.

Further, by combusting fossil gases, harmful substances like fine dust, nitrous gases and sulphur oxides will be released into the environment harming human health, causing premature death and biodiversity loss.[213] This is also the case for biofuels, which are allowed as a blending-in, that emit high amounts nitrogen oxides (NOx).

Assuming that "a substantial positive impact" has to be proven by the result of a weighting of potential benefits and disadvantages to the environment, it must be also considered that alternative ways of energy generation and providing flexibility exist. The environmental impact of e.g. wind, solar or hydropower is insignificant compared to the effect of the gas plants as a climate change driver.

In addition, a *substantial* positive impact has to be proven. Gas plants would need to outweigh those alternatives by a significant margin. The reasons stated above strongly indicate that this benchmark is not met.

The Commission did not consider the environmental impact of gas plants at all, as no impact assessment has been carried out (see above, III.1 a) 3) et seq.)

(bb) No direct enabling

Art. 16 Taxonomy regulation requires a *direct* enablement of other activities that make a substantial contribution to one or more of the objectives set in Article 9 Taxonomy regulation, i.e. the activities listed in Art. 10(1) lit (a) to (h) TR.

Compared to "transitional" activities, which describe the way from one state to another or the result of this way (see above [4]), "enablement" is a much narrower wording. The Cambridge dictionary states that, "enable" means

> *"to make someone able to do something, or to make something possible"*[214]

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213 German Federal State of Baden-Württemberg, https://www.wir-ernten-was-wir-saeen.de/gaskraftwerk (8/31/22).

214 https://dictionary.cambridge.org/dictionary/english/enable (8/31/22).

Given the term "direct" in Art 16 (chapeau), only those activities can fall under this provision that have a very short causality link to the enabled activities, e.g. renewable energy generation. The legal standard is set out above, III.1 b) (2) iii.

(i) Enabling of renewable energy

Power, heat/cool and district plants as described in SCDR Annex I 4.29-4.31 that combust fossil or low-carbon gas, do not enable generating, transmitting, storing, distributing or using renewable energy, **Art. 10(1) lit (a) TR.**

It is clear, that as these fossil gas activities themselves are energy generation technologies. Therefore, they cannot enable energy generation etc. Those had to be listed in Art. 10(1)(a) TR, which they are not. Only gas plants which exclusively use "renewable" gases per definition of Art. 1 RED II could be the object of an economic activity that enables "generating, transmitting, storing, distributing or using renewable energy". This narrow view is not supported and implemented by the TSC set out by the Commission in the SCDR.

Even regarding to their semi-flexibility function, fossil gas plants do not enable renewables directly. Without those plants renewable energy generation is still possible. What is more, green flexibility alternatives exits. It could be argued that gas plants enable supply security. This is, however, not a criterion in the list.

Moreover, the exhaustive list of feasible energy sources from the RED II directive is not extended by Art. 10(1)(a) second half sentence TR. This follows from the wording ("including…"). The half sentence only lists examples of the energy activities listed in the first half sentence.

Furthermore, those examples are not met either.

"Innovative technology" has to be interpreted restrictively in order to prevent using this clause for speculative technologies with no reasonably predictable benefit to climate change mitigation (conclusive science criterion). It cannot address technologies enabling combustion of fossil energy carriers. An example for such an enabling activity could be research activities regarding renewables.

Fossil gas plants do not enable "a potential for significant future savings". This criterion is not even met when considering the TSC "fuel switch in 2035" (SCDR Annex I 4.29-4.31). This does not concern a "future" saving.

Fossil gas plants are also by no means enabling "necessary reinforcement or extension of the grid". They could be the cause of a grid extension, the same as an oil power plant. But they do not make these grid improvements possible.

(ii) Enabling of improving energy efficiency

The fossil gas activities referred to in the Annexes I of the SCDR do not enable any economic activity which is improving energy efficiency, **Art. 10(1) lit (b) Taxonomy Regulation.** Mere causality of electricity or heat/cool production for efficiency improvement activities is not sufficient for an enabling activity, as already stated above. What is more, as already shown above under (4)(v), the fossil gas activities listed might actually decrease energy efficiency of the energy market.

(iii) Clean or climate-neutral mobility

The same applies to the criterion of "increasing clean or climate-neutral mobility" in **Art. 10(1) lit (c) Taxonomy Regulation.** Again, power from different sources can be used to enable clean mobility. Yet, using fossil does not directly lead to clean or climate neutral mobility, already supra (4)(ii)(cc).

(iv) Sustainably sourced renewable materials

Switching to the use of sustainably sourced renewable materials, **Art. 10(1) lit (d)** is evidently not enabled.

(v) Environmentally safe carbon capture and utilisation

Power and heat/cool generating activities that combust fossil gas do not increase the use of environmentally safe carbon capture and utilisation (CCU) and carbon capture and storage (CCS) technologies that deliver a net reduction in greenhouse gas emissions (**Art. 10(1) lit (e)**). The use of fossil energy carriers might rather *allow* the use of a net zero CCS or CCU technology and might be making this use necessary.

The only conceivable link between those activities is the practical experience that can be gathered through the use in these power plants, enabling an accelerated progress of economic feasibility. This would, however, not qualify as directly enabling as these techniques can also be tested at other, existing plants or GHG emitting sources.

vi) Land carbon sinks

Art. 10(1) lit (f) TR is evidently irrelevant.

(vii) Establishing infrastructure required for decarbonisation

The establishment of energy infrastructure required for enabling the decarbonisation of energy systems according to **Art. 10(1) lit (g)** Taxonomy regulation is not linked to construction, operation or refurbishment of fossil gas plants (4.28-4.31).

It was stated above (see supra (2)(ii)(ff) that fossil gas plants cannot be a substantial contribution to climate change mitigation by establishing energy

infrastructure, because they do not fall under the term “energy infrastructure” and using fossil gas disincentives the build-up of a decarbonized grid. The section above also showed that fossil gas plants used as (GHG emitting) flexibility technologies hamper the build-up of green flexibility infrastructure (which falls under the mentioned term) and curtails renewables. This, in turn, leads to even less grid reinforcement required for decarbonisation.

(vii) Producing clean and efficient fuels

Art. 10(1) lit (h) Taxonomy Regulation is not met.

Gas plants as described in the SCDR Annex I are not directly produce clean and efficient fuels from renewable or carbon-neutral sources possible. They rather combust those fuels already produced.

(6) No climate change adaptation activity

In the SCDR, he Commission has listed fossil gas activities under Annex II for their capacity to provide a substantial contribution to climate change adaptation (4.29-4.31). This seems far fetched from the outset and has no legal basis.

(i) Erroneous regulatory link to climate change mitigation activities

Annex II to the SCDR incorporates the same economic activities which are already listed in Annex I, section 4.29 to 4.31 SCDR. Exactly the same economic activities already described by Annex I can fall under Annex II, just adding some more TSC. This regulatory link causes arbitrary results. A given economic activity would already bear the label “environmental sustainable” by meeting the standards set out in Annex I, Section 4.29 ff as the term of is not differentiated into subcategories by the Taxonomy. There is no true stand-alone scope of Annex II.

As a consequence, the only possible stand-alone purpose of Annex II can be to safeguard Annex I in the event it is found to be unlawful. This fact also requires the RIR to include this Annex in detail.

This regulation technique is, above all, not covered by the Taxonomy Regulation.

Under Art. 11(3)(a) Taxonomy regulation the Commission shall adopt a delegated act in accordance with Article 23 to supplement paragraphs 1 and 2 of Art. 11. Annex II does not achieve this: The Commission mixes the environmental goals of climate change mitigation and climate change adaptation to a single (not listed) mixed environmental goal. It includes mitigation requirements to fulfil climate change adaptation, making it impossible for economic activities to just act as a adaptation activity in this branch. Art. 3(d) renders it mandatory to fulfil the Technical Assessment Criteria by the Commission in order to achieve the Taxonomy label. This is not “supplementing” Art. 11 Taxonomy regulation.

While it is possible for a given economic activity to fall under more than one economic goal activities (Art. 3(1): "contributes (…) to one or more (..) of the objectives"), it is not intended by the Taxonomy regulation that the Commission pre-empts this possibility.

The coverage of Annex II also contravenes Art. 19(1)(a) Taxonomy Regulation, as the Commission only is mandated to identify the most relevant potential contributions to the given environmental objective, which - regarding climate change adaptation. - is not fossil gas energy generation with a unrealistic low GHG levels (100g CO2e/kWh).

Annex II does not meet Art. 19(1)(k) Taxonomy Regulation. Firstly, no specific climate change adaptation measures are prescribed. The Annex repeats in an abstract manner the content of Art. 11(1)(a). This does not fulfil the mandate according to Art. 11(3)(a), as this is no supplementation.

Thus, Annex II as a whole, here regarding fossil gas, is already not covered by the mandate in Art. 3(d), 11(3) Taxonomy regulation. Furthermore, the other criteria of Art. 11(1) are not met.

(ii) No adaptation "including" activity

Under Art. 11 Taxonomy Regulation, an "adaption including activity" needs to either *substantially reduce the adverse impact* of the current and the expected future climate on that economic activity itself or to r*educe the risk of this impac*t, where an impact is not certain.

(aa) No Risk-reduction or adverse impact reduction

The economic activity has to *substantially* reduce the risk of adverse impact or certain adverse impact.

Given the wording of Art. 11(1)(a) it evident, that the contribution must be scientifically founded. Risk-reducing solutions without (conclusive) scientific evidence cannot be classified as a substantial risk reduction, they are rather speculative.

Annex II sets out criteria regarding risk and solution assessments. No specific physical adaptation measures are required. The criteria in Annex II 4.29 allow wholly non-physical adaptation measures. This is evidently inappropriate. It remains unclear, why the Commission implements highly detailed requirements in the first Climate Delegated Act, but refrained from doing so here (see e.g. Annex II: "3.5. Manufacture of energy efficiency equipment for buildings").

(bb) Impact increase on people, nature or assets

Since there are no substantial adaptation measures set out in the Annex II, no direct impact increase can be identified.

Moreover, under No. 4 of 4.29, 4.30 and 4.31 of Annex II, the wording of several provisions of the Taxonomy Regulation is simply repeated in other words. This is unlawful as the criterion to supplement the existing provisions is evidently not met.

(cc) "Including" means more than mainstreaming

The present case illustrates, that the term "including" cannot refer to just any measures, abstractive worded measures or just adaptation mainstreaming measures. A substantial contribution is needed, which translates to a substantial, physical adaptation measure is necessary. *Otherwise*, this clause would be a door-opener to a great number of economic activities, that do include some ostensible adaptation measures or merely planning, but have no further connection to environmental sustainability or are even harmful to the environmental goals.

(ii) No adaption "providing" activity

Art. 11(1)(b), allows inclusion of economic activities that provide adaptation solutions, that, among others, contribute substantially to preventing or reducing the risk of the adverse impact of the current climate and the expected future climate on people, nature or assets.

The fossil gas plants in Annex II provide electricity as well as heat/cool. This product does not prevent or reduce the risk from climate change consequences in an adequate causal link.

Furthermore, due to the same reason as above (i), the adaptation activity must predominantly have the purpose to reduce or prevent risks of climate change on the mentioned interests. This is evidently not the case with a fossil gas plant as its main purpose is electricity or heat/cool generation. Art. 11(1)(b) Taxonomy regulation is not applicable in the case of fossil gas plants.

Lastly, assumed that fossil gas plants could fall under Art. 11(1) Taxonomy regulation (quod non), the flexibility function of gas plants are also not an adaptation solution, as it provides an adaptation of the energy system to alternative energy sources, but not to climate change consequences.

Additionally, the requirements in Art. 16 are not fulfilled, as shown above under (5)(aa).

(7) No substantial contribution to other environmental goals
Fossil gas plants as described in Annex II, 4.29-4.31 fall evidently out of the scope of other environmental goals according to Art. 9 TR.

(8) Compliance with DNSH requirement (Art 17)

The generation of electricity or heat/cool from fossil gas as described in Annex I and II, 4.29 ff., must not cause "significant harm" to any of the environmental goals of the list in Art. 9 Taxonomy regulation pursuant to Art. 3 point b), 17 and 19(1) point b). The delegated act in question has to safeguard this in addition to fulfilling the environmental goal contribution.

As with nuclear generation activities, fossil gas is to be excluded from the Taxonomy because economic activities engaging fossil gas indeed cause significant harm to a variety of the environmental goals.
The DNSH requirement is infringed already if just *one* of the environmental goals is significantly harmed. Below, only the most important ones are reviewed.

Scrutinizing these requirements, a high standard exceeding the requirements of Art. 3, 191 TFEU has to be ensured, as already shown above under III.1. c) (5). Furthermore, it is mandatory to take into account the life cycle of the products and services provided by gas plants, including evidence from existing life-cycle assessments, Art. 17(2) Taxonomy Regulation.

(i) Climate change mitigation

According to Art. 17(1)(a), significant harm to climate change mitigation (Art. 9(a), 10(1) Taxonomy Regulation) is caused by the economic activity, where that activity leads to significant greenhouse gas emissions.

Fossil gas plants as described in the Annexes do not only hamper climate change mitigation but also pose a significant harm to this environmental goal, making the SCDR 4.29-4.31 Annex I and II unlawful.

Taking into account the life cycle of natural gas and thus the activities covered by the SCDR, additional significant GHG are emitted, even when high-emitting existing plants are replaced in the extent of the described criteria in Annex I. This was shown thoroughly above under (4)(vi), (v) and (vi) with a differentiated explanation regarding the different GHG thresholds.

Furthermore, this is also the opinion of the Platform. On pages 25, 26, 27 of its response, the Platform presented the emission curve of the activities under SCDR Annex I and II, 4.29, 4.30 and 4.31 as well as an example of the most efficient future CCGT plant that is technically possible.

Regarding 4.29 and even the extremely efficient CCGT plant, significant harm of the facility is demonstrated for over 10 years and the status of an environmental contribution is not met even after 2036. According to the Platform, with respect to combined-heat and power (CHPs) and district heating/cooling the requirements are not ambitious enough to avoid failing into the do no significant harm zone within 5-10 years and continue to do be there.

A variety of facts already addressed above show that the TSC on gas causes significant harm to the environment regarding climate change mitigation, including the following:

It is not clear which Independent Party is evaluating and monitoring emissions of the plants (Annex I, II 4.29-4.31). It is not reviewable, how trustworthy that organisation is. Also, the appointing mechanism regarding how the members or the Third Party are selected is not set out. This is leading to significant greenhouse gas emissions, if the monitoring and reporting by this verification instance is not working properly.

The numerous factors leading to a lock-in risk also in effect lead to significant greenhouse gas emissions over a long time, especially as the most realistic TSC thresholds do not take into account indirect (i.e. methane) emissions at all. The threat of currently not well reported methane emissions from production and transport of fossil gas are a significant harm to climate change mitigation.

Several studies suggest that LULUCF emissions by using biofuels can cause a high amount of GHG emissions due to secondary land use and land use change effects. There is no conclusive evidence to rule out these risk. This makes the review of the fossil gas activities under Art. 17(1)(a) impossible.

(ii) Circular economy, including waste prevention and recycling

According to Art. 17 (1)(d)(i) Taxonomy Regulation, the activity must not lead to significant inefficiencies in the direct or indirect use of natural resources such as non-renewable energy sources at one or more stages of the life cycle of products.

As already stated above, the generated product – electricity and heat/cool – can be generated more efficiently with renewables and alternative flexibility technologies than gas plants fuelled with non-fossil gases; as these gases have to be produced with a large amount of power use, causing an efficiency loss more than 36% just due to combustion in the plant itself.[215]

[215] The theoretical most efficient power plant has a efficiency rate of 64%, see Platform Response, p. 26.

Moreover, while CCS is allowed by the TSC, the scientific base for this still is not conclusive.[216] The long-term disposal of CO2 may cause significant and long-term harm to the environment, according to Art. 17(1)(d)(iii) TR.

e) Material criteria regarding Annex III

Annex III, becoming Annex XII when merging with Delegated Regulation (EU) 2021/2178, is superfluous, as it exclusively refers to nuclear and fossil gas related activities, which have been demonstrated as ineligible under the Taxonomy Regulation. It is therefore unlawful, too, and not covered by the legal base in Art. 8(4) Taxonomy Regulation.

The rule of law, Art. 2 TEU, is infringed, if Annex III would be kept, although Annex I and II are void. Companies would be put at an insolvable contradiction, if they had to report about economic activities that are not complying with Art. 3 (a) to (b) TR, but the reporting provisions oblige them qualifying them as such.

Also, due to to the EU Accounting Directive[217] as amended by the CSR Directive[218], under the correspondent national transforming law, non-financial companies are required to report on material risks and climate protection aspects, from a double materiality perspective (Art. 19a, 29a Accounting Directive). That means, while they have to describe the reliance on natural gas and nuclear as a risk to the environment, they would have to declare it as environmentally sustainable at the same time due to the accounting provisions adopted by Annex III of the SCDR.

2. Primary Law

a) Common Primary Law Infringements

(1) Contradiction to combating Climate Change, Art. 191(1) TFEU

Both energy carriers contravene EU climate change mitigation regulation. This follows first and foremost from Art. 191(1) TFEU, but is also set out in Art. 2 EU Climate Law.

Both nuclear and fossil gas activities evidently follow no GHG reduction lifecycle pathway, as set out above. They counteract the EU's climate goals, as well as the abstract reduction pathway laid out in Art. 191(1) TFEU.

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216 "Negative-emission technologies are not an insurance policy, but rather an unjust and high-stakes gamble", say Anderson/Peters, in: Science, Vol 354, Issue 6309, pp. 182-183, DOI: 10.1126/science.aah4567.

217 Directive 2013/34/EU

218 Directive 2014/95/EU

(2) Infringement of Human Rights
Human Rights protect individuals and organizations against climate change and the negative impact on climate change. In particular, Art. 2(1), 3(1), 17(1), 24 EU Charter of Fundamental Rights (ChFR) oblige all EU institutions and bodies to respect life, health, property and the children's right to future by combatting anthropogenic climate change.

As it has been shown, the measures laid down in the SCDR amplify climate change *and* CCC through avoidable GHG emissions, hampering the development of RE and causing direct environmental externalities.

Causing a nuclear energy capacity extension in the light of the highly incomplete assessment and risk related data is unacceptable in the light of Art. 2(1) and 3(1) ChFR, also not at least in conjunction with the precautionary principle

b) Nuclear energy
(1) Lack of Competence
(a) TSC on nuclear energy not eligible under Art. 191 TFEU
As already stated above, the Taxonomy Regulation is inseparably based on at least two provisions in the TFEU, without mentioning it expressively: Art. 191 TFEU as well as Art. 114, 115 TFEU. The high degree of environmental aspects could not be justified by the delegated power of market harmonization.

Art. 191(1) TFEU establishes the main environmental objectives of the European Union. It is broadly acknowledged that both the principle of "prevention of deterioration" as well as the imperative of improvement of the environment derive from it. The prolonged or extended use of nuclear plants for the provision of energy or warmth increases the *non-excludable* risk of a nuclear accident. It also raises the amount of nuclear waste which is currently not manageable. The inclusion of nuclear power plant technology fundamentally contradicts the high protection standard of the environment.

At the same time, effective environmental protection is always a contribution to health protection, which is an integral part of the Union's environmental policy (second bullet point). In addition, this objective is equally endangered by more nuclear power plants.

The only conceivable legal basis is the "combat of climate change" aspect in Art. 191(1), fourth bullet point TFEU. As already shown above, the indirect, well demonstrated indirect effects of nuclear power hamper the development of sufficient renewables and storage technologies. Nuclear energy itself will always emit CO2 (life cycle assessment).

(b) Art. 114 not sufficient

Art. 114 TFEU remains as the sole possible competence base.

The prerequisites of this provision are not met, either.

The fundamental requirement of setting out internal market rules is that they have a positive internal market effect. It is just not sufficient that the legislative act regulates the market in any kind of way[219]

This positive market effect comprises the aspects of market liberation and transparency. These principles can be restricted, if there is another legal basis which demands these restrictions. The requirement standards are high.[220]

The EU Taxonomy is intended to channel capital flows to certain economic activities. It is therefore not a regulation which creates or improves market liberation, but the opposite of it, as it favours some economic activities.

This needs to be sufficiently justified. Promoting renewables and combatting climate change has a legal basis in Art. 191(1) TFEU. For nuclear energy this is not the case, e.g. because of the demonstrated climate change mitigation hampering effect, uncertainties of the risks and the non-sustainable waste production. While generating energy from nuclear power plants is still allowed, there is no sufficient basis to enforce market restricting measures by further promoting nuclear energy.

A margin of discretion for the Commission is not applicable here, as the TFEU first and foremost addresses the law-making bodies and not the delegatee of non-legal acts. If, by means of a delegation in the Taxonomy Regulation a margin of appraisal is assumed, any provision on the basis of Art. 114 TFEU need to have at least the *intention* of liberating the market, which is clearly not the case here.

There is generally no market obstacle, which is another requirement for EU competence on the basis of Art. 114 TFEU[221] as there is no EU consensus on nuclear energy. While nuclear energy is still socially accepted in some EU Member States, studies indicate that a broad majority would not classify this technique as sustainable.[222]

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[219] see CJEU, C-376/98, Slg. 2000, I-8419, Rec. 83 ff.

[220] see CJEU, C-376/98, Slg. 2000, I-8419, Rn. 83 ff., Calliess/Ruffert/Korte, 6. Ed. 2022, AEUV commentary Art. 114 Rec. 53.

[221] Calliess/Ruffert/Korte, 6. Aufl. 2022, AEUV Art. 114 Rn. 53

[222] In Germany, 82% of the population is opposing this classification, see: Forsta, represtantatie Study in 2021, https://www.finanzwende-recherche.de/wp-content/uploads/2021/08/Studie_Atomkraft-und-nachhaltige-Geldanlagen-1.pdf (09/08/2022)

Promoting funding for research activities as regards 4.26 of Annex I is also not included in the legal mandate as the activity itself is not covered under Art. 191 TFEU.

(c) Euratom is exclusive legal basis

The Euratom Treaty is integral part of European law. Its provisions and secondary law exclusively regulate nuclear activities, which is codified in Art. 106a(3) Euratom: in fact, the Euratom Treaty prohibits a derogation of itself by a TFEU interpretation or legislation.

Art. 1 Euratom reads: "It shall be the task of the Community (...) by creating the conditions necessary for the speedy establishment and growth of nuclear industries." This is intended to be achieved by specific investment provisions that, inter alia, "stimulate action by persons and undertakings" and to "facilitate coordinated development of their investments in the nuclear field". Art. 92 et seq. Euratom create a common nuclear market is established. In contrast to the internal market under the TFEU in conjunction with the Taxonomy regulation, Art. 99 Euratom allows the Commission only to make "recommendations for facilitating movements of capital intended to finance the industrial activities listed in Annex II". Annex II contains nuclear industrial activities. Art. 203 Euratom mandates the nuclear community to enact necessary action to attain the objectives of the Euratom treaty.

It is well established in case law that the provisions of the Euratom Treaty constitute special rules in relation to the TFEU. Measures that can be based on the Euratom Treaty cannot be adopted on the basis of the TFEU.

As investments, especially investment in nuclear industries, a common legal basis for any legislation under the Euroatom treaty and a common market, that aims at liberation, are specifically regulated in the Euratom treaty, the SCDR regarding nuclear energy cannot be based on the Taxonomy regulation, that is prohibited from derogating the parallel existing Euratom provisions.

(2) Material Infringements of Primary Law

The SCDR inclusion of TSC regarding nuclear infringes material primary law.

Assumed that there is sufficient legal basis for the delegated act in the Taxonomy regulation, (which the applicants contest), the Taxonomy Regulation violates primary law if it allows this interpretation.

(a) Art. 191(1) TFEU – Prohibition of deterioration, improvement principle

Article 191(1) TFEU sets out various objectives of European environmental policy, which gives form to the Union's objective of protecting the environment,

in particular preserving, protecting and improving the quality of the environment, protecting human health, prudent and rational utilisation of natural resources and promoting measures to combating climate change.

The requirements of Art. 191 TFEU are legally binding, they do not only contain political program sentences[223]. The fundamental justiciability of the objectives and principles of Art. 191 TFEU has been recognized.[224].

Art. 191 TFEU does not prohibit legislation which allows risks to the environment. Regulation of that kind is, however, restricting Art. 191 TFEU and needs a justification based on other legal bases in the TFEU.

The concept of preservation aims at a **prohibition of deterioration** in the sense of ecological protection of the status quo. Overlapping with this in part, the protection of the environment requires that existing environmental burdens and pollution be **reduced** and future ones **avoided** by means of **suitable measures** of guidance and control[225]. Article 191(1) also includes the **improvement principle.** Thus, Art. 191 itself only gives the competence to establish provisions of benefit to the environmental goals.

As already demonstrated above, nuclear energy does not contribute to combatting climate change (Art. 191(1) bullet 4 TFEU). It also cannot be based on Art. 114, 115 TFEU (see above).

The provisions in the delegated act concerning nuclear energy thus also contradicts Art. 191 (1) TFEU in substance.

(b) High Level of Protection/Precautionary principle, Art. 191(2) TFEU

The CJEU considers the precautionary principle enshrined in Article 191 para 2 TFEU to be one of the fundamental principles of EU environmental law - but also of Union law as a whole.

According to the CJEU

> *„the principle entails that, where there is uncertainty as to the existence or extent of risks […], protective measures may be taken without having to wait until the reality and seriousness of those risks become fully apparent. Where it proves to be impossible to determine with certainty the existence or extent*

223 Streinz/Kahl, 3rd. Ed.. 2018, TFEU Art. 191 para 47.
224 Streinz/Kahl, 3rd. Ed.. 2018, TFEU Art. 191 para 50.
225 Calliess/Ruffert/Calliess, 6. Ed. 2022, TFEU Art. 191 para. 12.

> *of the alleged risk because the results of studies conducted are inconclusive, but the likelihood of real harm [...] persists should the risk materialise, the precautionary principle justifies the adoption of* ***restrictive*** *measures."*[226]

In the literal sense of the word, precaution means creating a reserve for the future by making sacrifices in the present.

The taxonomy intends to establish a high standard regarding sustainability and environmental goals. As already shown above, for logical reasons the standard established by the Taxonomy regulation is set higher than the existing technical (environmental law) standard. The bar for promoting economic activities as sustainable is therefore exceptionally high.

An energy generation technique which bears the risk of causing the greatest conceivable damage to the environment following from a single not intentionally caused event is conceptually not eligible for a legal framework, which set sustainability and environmental protection as a priority. The precautionary principle therefore also positively excludes nuclear energy for the sake of future generation.

(c) Polluter Pays, Art. 191(2) TFEU

Nuclear energy is not economically feasible. State subsidies are unavoidable, as nuclear energy plants on average create a loss of 5 billion Euro under normal operation circumstances (see already above). Costs of severe accidents would be payed by taxes to a great extent. Moreover, in many Member States, the costs for the storage sites and waste management are socialized. The SCDR does not contain specific provisions regarding this.

The polluter pays principle therefore protects the civil society against nuclear energy promotion of this kind.

(d) Fact finding procedure

The precautionary principle in Art. 191 (2) sentence 2 TFEU is violated by the de facto fact-finding process prior to the adoption of the SCDR. The future dismantling requirements as well as the environmental risks from radioactive waste and their socialised costs at the expense of future generations have not been assessed. The precautionary principle has also been violated because the legal requirements for the risk assessment have been insufficiently implemented.

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226 Case C-616/17, ECLI:EU:C:2019:800, para 43.

(e) Principle of materiality Art. 290 TFEU

The basic principle of materiality in EU law has already been thoroughly shaped by the CJEU before it was implemented in Art. 290 AEUV.[227]

According to this principle, the material aspects of a regulatory framework have to be part of the delegating, parent act and must not be provided in the delegated act.

In contrast to some continental law systems, the principle of materiality in EU law is not referring to the rule of law or the material core of fundamental rights, but to fundamental political decisions.[228]

It is obvious that the question of promoting nuclear energy as part of the Taxonomy has been and is by far the most controversial one. This became obvious by the great public debate after the announcement of the Commission's decision to include nuclear energy.

The quality of a material political decision is demonstrated by the commonly provided investment rules in the Euratom Treaty as well as the Council Decision 77/270/Euratom empowering the Commission to issue Euratom loans for the purpose of contributing to the financing of nuclear power stations.

What has been set out in the delegated act SCDR on nuclear is a material decision because of

- the inexcludable risk of severe accidents nuclear power plants with far-reaching effects on the environment, humans and assets,
- the uncertainties regarding storage facilities for high radiation waste (safety in the future, existence of them when necessary)
- the *fait accomplis* created by building new power plants – decommission, waste generation, assurance to private companies to socialise risk and a majority of the costs,

The possibility of the EP and Consilium for vetoing does not compensate the lack of democratic decision making, as the burden of intervention is reversed – in the ordinary legislation process, if there is substantial disagreement, the regulation would not be adopted or modified. In the case of delegated acts, the disagreement cannot be properly expressed as there is only the possibility to agree or disagree with the whole delegated act. Also, as it is a veto mechanism, disagreement leads to adoption of the delegation as in opposition to the ordinary legislation process.

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[227] CJEU Case 25/70, Slg. 1970, 1161, Rn. 6, Calliess/Ruffert/Ruffert, 6. Aufl. 2022, AEUV Art. 290 Rn. 15.

[228] see expressively CJEU , judgement of 27.10.1992 - Rs C-240/90 margin no. 37.

c) Fossil Gas
The SCDR infringes EU primary law regarding the TSC on fossil gas activities .

(a) Art. 191(1) TFEU – Prohibition of deterioration, improvement principle

It was shown above under (b)(2)(a) that Article 191(1) TFEU is legally binding and justiciable, it does not only contain political program sentences[229].

Article 191 (1), 3rd indent TFEU calls for a policy of sparing use of non-renewable resources, such as the promotion of energy efficiency. It also obliges the EU to **promote renewable energies**, since this indirectly contributes to the sparing use of non-renewable resources and to the reduction of greenhouse gas emissions.[230]

As shown above, the inclusion of fossil gas in the Taxonomy contradicts this in numerous ways. In contrast to nuclear power, the main problem with fossil gas is not the possible disastrous effects on the environment in case of an accident but the direct and indirect emissions and negative impact on the climate.

(1) Firstly, the improvement principle is disregarded because the promoted measures with respect to fossil gas are not intended to establish **transitional measures** for a limited time, until the transition is fulfilled, but rather to facilitate fossil gas plants that emit well into the phase of a carbon-neutral economy.

This is due to the ignorance of indirect emissions, that are nearly fully uncontrolled. Those emissions can make up more than the direct emissions in fossil gas facilities already nowadays due to methane leakage or the production of e.g. blue or even brown gases. This would directly counteract the improvement principle, as those activities are not just allowed,[231] but also promoted by the Taxonomy Regulation.

For power plants licensed before December 31, 2030, not only is there to be no time limit on operation, but the conversion to low-carbon gaseous fuels is not required until December 31, 2035. And even these are not greenhouse gas-free or climate-neutral only regarding the direct output, but merely greenhouse gas-reduced. The SCDR Annex will basically support the unlimited use of "low-carbon gases" in gas-fired power plants beyond 2035, which leads to uncontrolled additional emissions of greenhouse gases. This significantly contradicts the improvement principle.

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[229] Streinz/Kahl, 3rd. Ed.. 2018, TFEU Art. 191 para 47

[230] Streinz/Kahl, 3rd. Ed. 2018, TFEU Art. 191 para 61.

[231] The ETS system does not cover indirect emissions, either. There is no regulative Cap to these emissions in the EU.

(2) The improvement principle as well as the obligation to promote renewable energies is also contradicted due to the **obstruction of renewable energies** as a low-CO_2 alternative to new gas-fired power plants. The promotion of measures that – as shown above - do not contribute to the reduction of CO_2 emissions and will effectively hinder the progress of energy sources that do contribute in a positive way.

In summary, the objectives set out in Article 191(1) TFEU are disregarded and counteracted.

(b) Precautionary principle, Art. 191(2) TFEU

The CJEU considers the precautionary principle enshrined in Article 191 para 2 TFEU to be one of the fundamental principles of EU environmental law. The prevention concept of Article 191 para 2 TFEU implies a fundamental requirement to minimize damage, so that, for example, pollution limits are not exhausted and, as a matter of principle, the technically possible and economically viable measures to avoid or reduce environmental pollution are taken.[232]

The precautionary principle not only legitimises action in the case of a mere concern about possible environmental damage below the danger threshold, but it also commits to risk avoidance. There is an obligation to plan environmental precautions with the greatest possible foresight, with the aim of preventing environmental damage from occurring in the first place. It is thus a key principle for combating climate change.

As shown above the approach taken by the Commission regarding fossil gas does not respect this, as it supports investments to flow under a gren label to support construction of an emitting installation and only hopes for a technical solution, in particular regarding the H2 infrastructure. There is *de facto* no Paris pathway alignment, feasibility of a fuel switch, no reduction of emissions in the upstream value chain.

Again, also the high methane emissions that are very likely to be associated with the operation of fossil gas power plants, have not been considered by the Commission which is in non-compliance with the precautionary principle.

This is reaffirmed by the Platform‘s deliberations, that expressively points out inconsistencies with the precautionary principle with regard to fossil gas in the Delegated Act.[233]

(c) Art. 191(3) TFEU

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[232] Landmann/Rohmer Environmentallaw/Epiney, December 2021, TFEU Art. 191 para. 23.
[233] Platform response, p. 24.

The inclusion of fossil gas also infringes Art. 191 (3) TFEU, which requires the Union, in preparing its policy on the environment, to take account of available scientific and technical data and the potential benefits and costs of action or lack of action. Accordingly, the EU is required to develop a **coherent and consistent** set of overall regulations.[234]

Firstly, the Commission has significantly ignored relevant available data and scientific assessments regarding the environmental impact of fossil gas. Although the Commission has a margin of appreciation as to which scientific opinions they take into account, the non-consideration of significant concerns in various scientific opinions constitutes a misuse of discretion.

Furthermore, the Commission has not sufficiently assessed the potential benefits and costs of action or lack of action. It has not conducted the necessary **overall impact assessment** encompassing all short-, medium-, and long-term impacts of environmental aspects. While this is a very complex matter as the present case shows, it is all the more important to have a systematic interpretation that, in the event of uncertainties and cases of doubt, incorporates the precautionary principle into the considerations as the corrective that determines the overall weighing process.[235] The negative impacts and the setback in investments in renewable energies that will be produced by labelling fossil gas sustainable and the potential impact on combatting of climate change has not been taken into account sufficiently, let alone in a quantitative manner.

d) Interim conclusion to Primary Law

EU Primary law is violated by the SCDR, in particular, both with respect to nuclear activities and fossil gas activities, the CSDR lacks a legal basis.

IV. Overall conclusion

The SCDR is unlawful in its entirety. The margin of discretion is reduced in a way that urges the Commission to a complete revocation. If necessary, this will be shown in the EU courts of law.

Qualified electronic signed by

Dr. Roda Verheyen
Attorney-at-law

John Peters
Attorney-at-law

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234 cf. Streinz/Kahl, 3rd. Ed.. 2018, TFEU Art. 191 para 47.

235 Calliess/Ruffert/Calliess, 6th. Ed. 2022, TFEU Art. 191 para. 48.

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