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SUBJECT: EU Technical Expert Group (TEG): EU Taxonomy and Nuclear Finance.

1. The EU Taxonomy

1.1.- The European Commission has recently published the rules for sustainable finance, known as the EU taxonomy, intending to identify economic activities that can be considered economically and environmentally sustainable. As part of this, the EU Taxonomy Technical Expert Group (TEG) delivered their final recommendations to the Commission; excluding nuclear from the Sustainable Finance Taxonomy 'at this stage', stating that 'it was not possible to conclude the nuclear energy value chain does not cause significant harm to other environmental objectives on the time scales in question'.

1.2 As key pan-EU national and regional organisations, national and regional NGOs, institutions, and scientists with long-standing involvement in the field of nuclear energy, we have, over time, sought to constructively engage in the EU Technical Expert Group (TEG) Taxonomy process. In this context, we remain concerned that the nuclear industry and a very few Member States now seek to revisit this key recommendation.

2. The EU Energy Landscape

2.1 The EU energy landscape is one of differences between state and market, choices and trade-offs over supply-side, demand-side, transmission and load-balancing infrastructure. Although EU States may diverge in terms of economic, cultural and industrial landscapes, public opinion, technological structures, institutions, regulatory practices and energy mixes - there remains the real possibility of evolving open and flexible frameworks to develop collective action on energy. This is critically important, since recent reviews of the impact of climate change suggest that, over the next few decades, we will be subject to significant change in human health, welfare and environmental systems. Key to adapting to this change is the transition to a low carbon and resource efficient energy economy, involving major structural changes to the way we work and live – including how we source, manage, use and conserve our energy. We need to secure clean, safe, affordable, sustainable, low carbon energy to power industry, transport, hospitals, homes and businesses before 2050.

2.2 The challenge of achieving this may involve a series of technically and economically viable options, including the expansion of renewable energy sources in all sectors, rapid growth and modernisation of electricity grids, improvements in energy efficiency, the use of modern technologies to minimise electricity consumption, rapidly

enhanced storage technologies, market innovations from supply to service provision, the fundamental re- structuring of the built, transport, industry and agriculture environments and, some argue, continued reliance on nuclear power. Yet, at the heart of the nuclear issue are differing views on how to apply foresight, precaution and responsibility in the context of the relative economics of nuclear, the uncertain role of nuclear in combating climate change, the possibility of accidents, the consequence of those accidents, the production of highly problematic waste, and whether there exists a role for nuclear within the swiftly expanding renewable energy evolution.

3. New Nuclear

3.1 Market trends for new nuclear are in stark decline and renewables are markedly rising. The, perhaps obvious, explanation for this dynamic can be found in the ramping costs of the former and the plummeting costs of the latter. In this sense, not all lower carbon options are equal, benign or effective - and there are choices to be made.

3.2 For nuclear to be considered a feasible option, new reactor build should be able to be completed economically, efficiently and on-time. However, practical experience suggests otherwise. Nuclear new-build represents a high-risk technical, regulatory and investment option, with a marked tendency for significant delay and cost over-run. Sets of substantive market analysis strongly suggest that investment in nuclear power is uneconomic – this holds for all plausible ranges of investment costs, weighted average costs of capital, and wholesale electricity prices. The slow implementation of nuclear energy into the power system, and limited scalability over the short-term in comparison with other, sustainable, options significantly questions the effectiveness of further investments in new nuclear.

3.3 World-wide and in the EU, the fate of new nuclear is inextricably linked to, and determined by, renewable energy technology roll-out. When considering the entire nuclear life-cycle (including construction, operation, plant dismantling, and the nuclear fuel cycle), even without attempting to internalise the emissions burden from radioactive waste management, the higher estimates in carbon footprint suggest that nuclear may be significantly more carbon intensive than renewable power.

3.4 There seem no resounding new revelations over the vulnerability of nuclear to unforeseen natural disasters or through human or engineering-based fault conditions, including accidental or deliberate harm. Accidents are by nature, accidental, and the cost of ignoring this common-sense axiom can prove radiologically catastrophic. Whatever one´s view of the risks and benefits of nuclear, it is clear that the possibility of catastrophic accidents or incidents, and consequent economic liability, must be factored into energy policy decision-making.

3.5 In addition, the production of radioactive waste, including the unresolved issue of nuclear waste management, places nuclear technology counter to the key ‘Do No Significant Harm’ (DNSH) principle. This is because, despite 70 years of operation and research, the nuclear industry has yet to provide proven and sustainable methods of

management that neither increases radioactive waste volumes nor decreases the potential risk to the environment.

4. Climate Change

4.1 With mounting public concern and policy recognition over the speed and pace of the low carbon energy transition needed to mitigate climate change, nuclear has been re-framed by some as a partial response to the threat of global heating. However, given the costs, risks, proven slowness of implementation, and cradle to grave emissions of CO2; nuclear will struggle and fail to compete with renewable technological, economic and security advances.

4.2 The Intergovernmental Panel on Climate Change (IPCC) has recently reported that extreme sea-level events that used to occur once a century will strike every year in many coasts by 2050, whether climate heating emissions are curbed or not. Thus, EU coastal nuclear plant will be increasingly vulnerable to sea-level rise, storm surge, tidal ingress, and flooding of reactor and spent fuel stores - and these impacts may occur quicker than nuclear regulatory or industry have planned for. Inland reactors may fare no better due to flooding risk associated with extreme precipitation events, or loss of cooling due to river flow reduction or heating.

4.3 The illusion that nuclear energy is necessary to prevent climate change, is dangerous. Climate change poses a number of unique challenges to humanity. One of the most difficult is that the world not only needs to get to a specific place - a carbon neutral global energy system; but it must also get there by a specific time - the middle of the century. Otherwise the policy has failed.

4.4 The reality is, you simply could not build enough nuclear reactors fast enough even to replace the existing reactors that will reach the end of their life by 2050, let alone to replace fossil fuels in the existing electricity system - and even more so for the more electricity intensive economy that European states are currently building. This would be true even if you were willing and able to overcome all the other unsolved problems that nuclear reactors face: affordability, accidents, waste management, proliferation, special materials and talent scarcity, and system inflexibility.

4.5 Further, the very great cost of proposed life-span extension of ageing nuclear plants is complicated by the fact that the first and second wave of EU nuclear plants were constructed well before the impacts of global heating were considered in their design base. Thus, even after any proposed life-span extension improvements, ageing nuclear plant would have significantly less protection against external hazards and the risks of a long-term loss of cooling due to poor redundancy and lower quality spent fuel pool standards.

4.6 Nuclear sucks funds and vital political attention away from imperative zero-C investments. It displaces renewables on the grid and diverts essential research. Achieving a zero-C Europe is made slower and far more expensive. Heavyweight

nuclear lobbying undermines implementation of renewable energy systems, energy efficiency and demand side management zero-C efforts. The ramping opportunity costs of new nuclear significantly compromises other, more flexible, safe, productive, cost-effective and affordable technologies - and comes at a time when the development of renewable, sustainable and affordable low carbon energy is a growing economic sector with a huge potential for employment creation in the EU.

5. The EU Technical Working Group (TEG)

5.1 We strongly urge the European Commission to maintain good faith in the EU TEG Taxonomy recommendations – that, essentially, nuclear does not meet the criteria for sustainable investment.

5.2 In this context we also urge the Commission not to consider forming any further technical working group on the nuclear issue in the context of sustainability criteria. However, if the Commission were to do so, we would make a very strong case for representation in any further technical working group – in the context of the Commission's adherence to its fundamental collective values.