AIOTI
**Alliance for
Internet of Things
Innovation**

AIOTI Response to Renewable Energy Directive (RED) recast

SUMMARY

The RED builds on the European Green Deal, in which the Commission set out "a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use. It also aims to protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts".

- AIOTI strongly supports this strategy

- AIOTI strongly supports the reduction of GHG emissions of at least 55% by 2030 compared to 1990 as a concrete element of this strategy

- AIOITI believes that an earlier date then 2050 needs to be set for the European Union to achieve carbon neutrality, given the current climate facts (e.g. IPPC report August 2021) and lack of clear 1,5C measures agreement in the recent COP26 (November 2021).

- AIOITI strongly supports the strategy to transition fossil based energy sources to renewable sources. To this purpose AIOTI strongly recommends a higher target than 40% by 2030 for the simple reason given in the previous point. The weighing of this target to 'prevent overshooting the climate target' and thus limiting to 40% is very debatable given the climate developments and the charter for fundamental right. With a country like Sweden already at 60% renewable energy, this would be a good target for the EU by 2030.

Energy generation is responsible for 75% of the GHG emission, and we strongly recommend using the transition to renewable sources as a key driver for a full societal transition towards circular and renewable concepts. We believe the technical solutions are mainstream.

To this matter AIOTI recommends to amend the directive recast to include more explicitly the development of local renewable energy generation since the current directive is foremost focusing explicitly on current energy infrastructures.

In addition AIOTI perceives the current break down of existing energy applications as a missed opportunity redesigning the European energy landscape accelerating the transition towards a circular, net-zero carbon Economy and Society, which is the Commission's ambition.

AIOTI would like to emphasize the need for integral approaches to the Green Deal ambition, meaning designing back from the future ambition. Rather than trying to enforce an optimization from our current implemented solutions. Based on for example the IPCC report of August 2021, it is clear we need giant leaps in transforming our society and economy, instead of small optimization steps.

In particular, IoT and Edge Computing are two elements in a larger family of technologies to deliver effective and sustainable systems. Currently many enabling technologies, like IoT, edge computing, smart connectivity, AR/VR, AI/ML and distributed ledger technologies are being deployed and used in many facets of the economy and vertical industry domains. The use of those enabling technologies can support sustainable solutions that will be able to achieve the objectives of the European Green Deal and the large-scale implementation of Renewable Energy. Those technologies, such as IoT, edge computing and smart connectivity can function as enablers of such solutions and at the same time their use will enable energy networks and consumers to become more energy efficient in general, thereby reducing energy consumption at a time when the future of our environment depends on it. These enabling technologies are supported by an evolved ICT infrastructure addressing the connectivity and computing horizontal features.

DETAILED COMMENTS AND RECOMMENDATIONS

Focus on IoT and Edge computing as being enabling technologies that support the deployment, moniting, control and maintenance of renewable sources, like solar panels, solar heating Geothermic heating, HVAC + Heat pump.

Focus on existing energy application and the opportunity redesigning the European energy landscape accelerating the transition towards a circular, net-zero carbon Economy and Society, which is the Commission's ambition.

AIOTI perceives the approach for the directive recast mainly as a substitution strategy and would like to warn for unintended consequences.

District heating and cooling

The fundamental flaw is most easy to point out with the idea of district heating and cooling. The fundamental misconception is that people do need heat. That is NOT the case. People need COMFORT or in other words Quality of Living, in line with the SDGs and the ambition of the Green New Deal. Quality of Living includes elements like temperature comfort, light comfort, sound comfort, inner air quality comfort, affordability through minimal energy consumption and maximizing (renewable) energy self-generation, minimizing water consumption.

From a technical perspective the temperature and air comfort is optimizing relative humidity, temperature and O2/CO2 levels.

Already 10-20% on average of all homes in EU suffer from humidity problems, leading to mould issues, leading to chronic health issues and as such driving a yearly increase of health and care costs (Source: BPIE). Strongly pushing for insulation and (convection-based) heating and cooling, will only deteriorate the inner climate conditions in most homes, and will lead to unintended energy losses from more opening of windows to get fresh air in. An experience that is known already for years since the extra insulation of homes was promoted, resulting from the separated approach towards humidity, temperature (heating, cooling) and O2/CO2 control.

Based on the experiences from the passive home design and building industry, active home design approach and the energy, cost and co-benefit comparison, AIOTI sees the EU-wide required home renovation wave as an important driver for the introduction of ventilation based home comfort systems. There are solutions offered and implemented that integrate all the elements of humidity, temperature (both heating and cooling) and O2/CO2 control in a very energy efficient way. These solutions use a heatpump-based ventilation approach and generate domestic hot water in the same system.

That proposed strategy serves multiple targets at the same time: increasing energy efficiency in homes, accelerate renovation initiatives, minimise GHG emissions, implement both heating and cooling capacity, increase healthy living conditions, reducing health costs. Not to forget the impact on productivity from better comfort, elimination of air-borne viruses and bacteria, VOC and more when using an ionizer extension. In combination with locally generated renewable energy this leads to resilient districts.

IoT solutions are already available to manage and control multiple outcome optimization for smart districts, accelerating the renovation wave and intended outcomes in energy efficiency, GHG reduction and affordability.

This strategy is already implemented in renovation projects in Denmark, Netherlands and Germany.

District heating and cooling projects are 'just' infrastructure projects, that will take on average 5-7 years from inception to realization, costing millions of Euros, providing only partial solutions, maintain GHG emission during the project realization, drive to extra costs for home owners (less affordability) and drive centralized solutions through vendor lock-in. Not taking into account that the capacity to build these infrastructures is not near enough to be ready by 2050.
From a resilience point of view not the optimal outcome.

Decentralized renewable energy production

A second element we would like to point out is that the directive could have much stronger impact if it would push for local decentralized energy generation, close to the users. Generating energy locally is needed to provide a direct financial gain, needed to compensate the higher home energy consumption of large-scale heat pump implementations.

Another benefit of a more integral approach is that through the creation of local 'virtual powerplants' (a micro-grid architecture) a neighbourhood is pushed for institutionalizing the community to organize its group ownership of the infrastructure, in the same way that home-owner associations are set up.
This way a more ambitious goal for renewable energy can be the necessary key driver for triggering a social innovation and for example a renovation wave.

Such a more integral view has already been laid down in the ISO37120, sustainable community development. It would be good of the directive recast builds on this.

Especially for the Renovation Wave to pick up, it is of utmost importance that an integral legislation is present to prevent partial solutions that will lead to regret investments and the missed opportunity of the scarce available human resources building towards the net-zero economy and society.

We hope that this detailed analysis proofs that an integral approach 'designing from the future' in combination with actual market accepted solutions, provides the outcomes the RED is trying to enforce.

AIOTI is at your disposal for further insights and input.

ABOUT AIOTI

AIOTI is the multi-stakeholder platform for stimulating IoT Innovation in Europe, bringing together small and large companies, start-ups and scale-ups, academia, policy makers and end-users and representatives of society in an end-to-end approach. We work with partners in a global context. We strive to leverage, share and promote best practices in the IoT ecosystems, be a one-stop point of information on all relevant aspects of IoT Innovation to its members while proactively addressing key issues and roadblocks for economic growth, acceptance and adoption of IoT Innovation in society.

AIOTI's contribution goes beyond technology and addresses horizontal elements across application domains, such as matchmaking and stimulating cooperation in IoT ecosystems, creating joint research roadmaps, driving convergence of standards and interoperability and defining policies. We also put them in practice in vertical application domains with societal and economic relevance.