RE-CITY

INTERNATIONAL PLATFORM
FOR SOCIAL SUSTAINABILITY

RE-CITY REPORT

PROPOSALS FOR A SUSTAINABLE AND RESILIENT SOCIO-ECONOMIC TRANSITION

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How to read this document

Within the framework of the Re-City project, the Catalunya Europa Foundation and the BBVA are pleased to present "Proposals for a sustainable and resilient socio-economic transition", a document with more than 50 brave and determined proposals to move towards a society that is more inclusive, sustainable, green and resilient, ready to adapt to the challenges of a world that is global and full of uncertainties.

This document has its origin in various conferences, seminars and talks with the participation of international experts in the field of climate change: Peter Newman, Kevin Winter, Alistair Woodward, Koen de Ridder, John Roemer, Ana Huertas, Rob Hopkins, Sladjana Mijatovic, Kirsten Dunlop, Stephen Nolan, Diana Reckien and Barbara Maher, in addition to representatives of the academic, business, trade union and institutional world in Catalonia. These meetings served to address different aspects of climate change, such as mobility, air pollution, urban heat islands, circular economy, finance and more sustainable models of living; they also explored the role of international cooperation in facing the uncertainties and the challenges of climate change. Therefore, the 50 proposals defined in this document are the result of consensus among the different representatives of the business, trade union and institutional sector in Catalonia.

The proposals presented in this document are mainly directed towards combating the principal cause of climate change, anthropogenic greenhouse gas (GHG) emissions; at the same time, other issues will be considered, such as the health of the population (air pollution and urban heat islands), waste, the sustainable use of natural resources, environmental protection, and adapting to the impacts of climate change. Since all transitions have associated risks, this document also aims to serve as a reminder of how to implement this transition fairly, taking account of all kinds of inequalities (economic, cultural, gender, digital, etc.).

The climate emergency is one of the great challenges of our age, so it should be high on Catalonia's political agenda and a key focus of debate. The present model of society needs an urban transition that is inclusive, sustainable, green and resilient, not only in order to fight climate change, but also to re-establish a series of strategic production capacities at a local level that will ensure safety and quality of life in the face of uncertainties and threats like the COVID-19 pandemic we are currently experiencing.

On the one hand, the current COVID-19 pandemic has highlighted the vulnerability of companies and cities that are over-dependent on global supply chains, with little capacity to react. The pandemic has also exposed the need to rethink our economic development model and a modus

vivendi based on the idea of unlimited growth. It is imperative to promote a new, greener economic development model that is more inclusive, sustainable and resilient.

However, it is not a question of creating a new model from the roots up. Today, we have the tools, the technology and the capacity to adapt to business models that are more decentralised and more resistant to changes in distributed production processes; to a more sustainable mobility model and an increase in work, education and administration in a digital format. In this context, "Proposals for a sustainable and resilient socio-economic transition" aims to serve as an ambitious starting point for debate and reflection on what the social consensus is for advancing towards this society of the future. Yet this is a proposal that seeks to go beyond a limiting minimum consensus. It reflects a commitment to turning this crisis into an opportunity to reinvent our economies and to strengthen local capacities by creating a new socio-economic model that is less dependent and vulnerable.

"Proposals for a sustainable and resilient socio-economic transition" seeks to give voice to the business world, presenting the changes that must be introduced into this sector with urgency, in order to tackle the climate emergency in a global and uncertain world. However, the transition cannot be made alone. Nor can it be driven through in isolation, with each actor in their own particular niche. To make this transition actually happen, robust and long-lasting strategic alliances will be required. Alliances between the private sector and public institutions. And, of course, the political will to drive through the changes.

Therefore, this document has been divided into two parts. The first part presents the proposals directed towards the realm of enterprise, while the second details the actions to be taken by public institutions in order to implement these proposals.

Introduction

International agreements and objectives

It is estimated that human contribution to the global temperature change is 92% (USGCRP, 2017, page 114). Furthermore, many of the world's environmental problems are caused by cities. This is why good practices of cities aimed at adapting to and mitigating climate change are very important, if we are to succeed in reducing the carbon footprint and curbing the global temperature increase.

The objective of **the Paris Agreement**[1], signed in 2015 by 195 countries, is to strengthen the world's response to climate change by keeping the increase in global average temperature to no more than 2°C above pre-industrial levels and, furthermore, to limit this increase to 1.5°C in accordance with the special report of the *Intergovernmental Panel on Climate Change* (SP 1.5 IPCC, 2018).

The Paris Agreement also establishes a global climate change adaptation objective. All parties must implement an adaptation plan and it is expected that they will submit and periodically update an adaptation communication about their priorities, execution needs, support and actions.

With the aim of complying with the Paris Agreement, the European Union has set itself the goal of decarbonising the market by 2050 (Energy Strategy[2]). In order to achieve this, by 2030 it aims to:

- ✔ Reduce greenhouse gas emissions by 40% compared with 1990.
- ✔ Achieve a 32% share of energy consumption from renewables.
- ✔ Increase energy efficiency by 32.5%.

However, the new *Green Deal for Europe*[3], which is yet to come into effect, goes further and plans to establish a reduction of 50% by 2030.

In 2015, signatures were also put to the 2030 Agenda for Sustainable Development[4], adopted by all the Member States of the United Nations. At its heart are the 17 Sustainable Development Goals (SDGs[5]), constituting a plan of action for all developed and developing countries to improve health and education, reduce inequality, spur economic growth and tackle climate change.

In this international context, the transition required in order to achieve the goals of the Paris Agreement must be aligned with the SDGs. In other

[1] https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement
[2] https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union
[3] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
[4] https://sustainabledevelopment.un.org/post2015/transformingourworld
[5] https://sustainabledevelopment.un.org/

words, it must be a just transition, and this just transition must serve as a starting point.

CO_2 emissions in Catalonia

In 2017, **GHG emissions in Catalonia were 16% higher than in 1990** (38.7 million tonnes of CO_2-equivalent in 1996 and 45.07 million tonnes of CO_2-equivalent in 2017). In Spain, the increase on 1990 was 17.8%, while in the EU-28 the year with the highest emissions was 1990, and since then a reduction of 24% has been achieved (Generalitat de Catalunya[6], OCCC - Catalan Office of Climate Change[7]).

In order to achieve the goals set by the European Union, by 2030 the whole of Catalonia must reduce diffuse emissions by 32% compared with 2005 (the year of reference, being the first year for which data on diffuse emissions is available). As already mentioned, the new *Green Deal for Europe*[8], which is not yet in force, goes further than this. Therefore, the efforts to be made will have to be more ambitious.

In Catalonia, 2005 was the year in which the highest ever volume of GHG emissions was recorded: 58.43 Mt CO_2-eq. Therefore, since 2005 there has been a reduction of 23% in total GHG emissions. This reduction of GHG emissions in Catalonia is largely linked with the severe economic recession that affected all sectors. Despite this reduction, 2017 was the fourth consecutive year in which GHG emissions registered an increase on the previous year (up 2% on 2016), showing that, as the economy recovered, emissions began to rise again (Generalitat de Catalunya).

Although total GHG emissions have increased, in 2017 in Catalonia **GHG emissions per inhabitant were 6% less than in 1990 and 1% more than in 2016**. On the other hand, **the intensity of the emissions in Catalonia has also fallen by 31% compared with 1990** and was 1.3% less than the previous year; in other words, GHG emissions per unit of GDP are showing a downward trend, **so energy is increasingly efficient** (analysis is made of the ratio between total GHG emissions in Catalonia and GDP measured at constant 2010 prices – according to the methodology proposed by the European Environmental Agency, EEA – in order to compare data from different years over an extended period, GHG progress report 1990-2017[9]).

In Catalonia, **the sectors that have the highest associated GHG emissions are Industry and Transport**, with 31% and 28% of total emissions, respectively. In 2017, emissions associated with the industrial sector showed a decrease of 3.5% compared with 1990, while those associated

[6] https://canviclimatic.gencat.cat/ca/canvi/inventaris/emissions_de_geh_a_catalunya/

[7] https://canviclimatic.gencat.cat/web/.content/01_EL_CANVI_CLIMATIC/inventaris_demissions/inventaris_demissions_a_catalunya/Informe-Progres-1990_2016_versio-2018_final.pdf

[8] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

[9] https://canviclimatic.gencat.cat/web/.content/01_EL_CANVI_CLIMATIC/inventaris_demissions/inventaris_demissions_a_catalunya/Informe-Progres-1990_2017_versio_2020.pdf

with the transport sector (including transport by road, sea, train and air) increased 20% compared with 1990 (GHG progress report 1990-2017).

Renewable energies in Catalonia

In 2017, 36.6% of Spain's electricity was obtained from renewable energy sources. The corresponding figures for the European Union and Catalonia were 29.6% and just 16.4%, respectively. Furthermore, in 2016, the share of renewable energy in gross final energy consumption was 17.3% in Spain, 17% in the European Union, but only 8.2% in Catalonia (Idescat - Catalan Institute of Statistics[10]). This situation in which Catalonia is lagging behind with respect to renewable energies, is due, in part, to the decree of 2009 (DECREE 147/2009[11]), which blocked the reactivation of renewable energies such as wind and photovoltaic energy in Catalonia; this decree was repealed, making way for the new decree-law on urgent measures to tackle climate emergency passed by the current government in November 2019 (Decree-Law 16/2019[12]).

As for the energy transition, in order to achieve the goals set by the European Union, **Catalonia must increase its renewable energy share by 24 percentage points in 24 years (moving from 8% in 2016 to 32% in 2030**), while Spain and the European Union's target is an increase of 15 points in 24 years (from 17% to 32%).

Despite the recent declarations of climate emergency that have emerged from nations, regions and cities alike, the data on greenhouse gas emissions and energy consumption show that results clearly fall short of the goals set to tackle climate change, particularly in Catalonia.

These figures call out for urgent action and ambitious responses, both from society, with respect to its consumption pattern, and at a corporate level, in addition to adjustments to the regulatory framework to accompany the necessary transition. It is imperative that the entrepreneurial sector should take a leading role in publicising and implementing new proposals for making progress with the sweeping changes required. It is also important to focus more closely on elements of measurement, in order to evaluate the changes and begin to act, even though this may be with local contributions, in the awareness that it is difficult to make an impact at a global level.

It is hoped that both the private and public sectors will be able to make use of these proposals to tackle the present climate emergency and monitor the actions taken.

[10] https://www.idescat.cat/indicadors/?id=ue&n=10160&t=201300

[11] https://portaljuridic.gencat.cat/ca/pjur_ocults/pjur_resultats_fitxa?action=fitxa&documentId=502339

[12] https://portaldogc.gencat.cat/utilsEADOP/PDF/8012/1772791.pdf

Changes at company level

In order to achieve both the goals of the Paris Agreement and those set by the European Union, and in view of the fact that industry and transport are the sectors with the highest GHG emissions (in 2017 they accounted for 59% of all emissions in Catalonia), the involvement of companies is vital. Moreover, companies must be prepared for legislation on renewable energies which will be implemented sooner or later, in line with the trend to gradually eliminate benefits from fossil fuels, subsidies for renewables, etc. (Spanish Climate change and energy transition bill[13]). This is why we are calling on the entrepreneurial sector (construction, production and distribution) to make a commitment to limit energy consumption, increase the use of renewable energies and lower GHG emissions.

This section presents some proposals that can be applied by companies to tackle the climate emergency with regard to energy transition, reducing the carbon footprint, circular economy, mobility, green infrastructure, communication, education and finance.

A. ENERGY TRANSITION

In 2018, the renewable energy sector grew 10.7% compared with the previous year, giving employment to 81,294 workers (3.3% more than in 2017, Study in 2018 by APPA - Association of Renewable Energy Companies[14]). This data shows us the potential that this sector has to create new jobs and contribute to Spain's GDP as progress is made towards a complete energy transition by the year 2050.

1. Contract 100% renewable energy.

A first step in making the transition to renewable energies is to increase demand for renewable production. If companies change their electricity contracts in favour of trading companies that can certify their electricity is from 100% renewable sources (see table of 100% renewable electricity trading companies[15]), the latter will have to put pressure on the producers to increase the percentage of renewable energies they produce, so they can meet the new consumer demands.

Another possible initiative is for **industrial estates to make joint renewable energy PPAs** (*Power Purchase Agreements*). One of the key aspects of a PPA is that it gives the renewable energy producers access to greater funding. Furthermore, they can contribute to the creation of new renewable energy installations.

[13] https://www.miteco.gob.es/es/prensa/proyectodeleydecambioclimaticoytransicionenergetica_tcm30-509256.pdf

[14] https://www.appa.es/wp-content/uploads/2019/10/Estudio_del_impacto_Macroeconomico_de_las_energias_renovables_en_España_2018_vff.pdf

[15] http://icaen.gencat.cat/web/.content/20_Energia/24_usos_energia/01_llar/contractacio-energia-electrica/pdfs/20180226_TaulaComercialitzadores100_EERR.pdf

2. Self-produce renewable energy (photovoltaic, wind, biogas and biomass).

Companies can also make a commitment to the energy transition by ensuring that part of the energy they consume is self-produced. Among the possible options are using the roofs of buildings (particularly on industrial estates) to produce **solar photovoltaic energy**; the production of **biogas** obtained from waste water treatment; **solar thermal energy** for sanitary water; and the incorporation of **biomass** as an alternative energy source. Nearly 50% of the surface area of Catalonia is woodland. Therefore, biomass is a good option for clean alternative energy. It also has environmental advantages, such as reducing the risk of fires and generating employment in areas with a low population density.

Public-private collaboration is a good way to encourage self-production. Vallès Solar is a solar photovoltaic panel installation project that includes joint demand, takes the responsibilities of each party into account, and operates with municipal ordinances that incentivise installation. The project also enables industrial estates to be linked up with towns and cities.

3. Follow energy efficiency criteria.

Companies must seek to improve the energy efficiency of both their existing buildings and new buildings.

Energy efficiency criteria must be taken into account, not only with reference to energy production, but also waste management, water reuse, energy saving, thermal insulation, air conditioning, efficient lighting, etc. In the long run, these actions can save the company money.

Companies should also promote the sustainability certification of their buildings. At present, Directive 2010/31/EU fosters the energy efficiency of buildings by establishing some minimum energy efficiency requirements. In addition to this, the LEED (*Leadership in Energy and Environmental Design*) certification is a rating system for sustainable buildings. Other sustainability certifications cover good practices in efficient energy management (ISO 50001); environmental management, i.e. optimising the management of resources and waste and reducing the negative environmental impacts of businesses' activities (ISO 14001); and ecodesign management and implementation of the circular economy (ISO 14006).

B. CARBON FOOTPRINT MANAGEMENT

4. Present emission data in non-financial information.

The current regulation on disclosure of non-financial information by companies (Directive 2014/95/EU[16]) obliges those with more than 500 workers to present, as a minimum, details of the current and foreseeable impacts of their operations on the environment and on health and safety, **the use of renewable and non-renewable energy, GHG emissions**, water use and air pollution. The companies must also include a description of the policies they apply with relation to these matters, in addition to the results of these policies. From 2021, these regulations, which are currently being revised, will apply to companies with more than 250 workers, among other requirements. Other data to be presented may include the **energy intensity** (the relationship between the profits of the company and its energy consumption – Wh/euro) and the **intensity of emissions** required per production unit (CO_2eq/ 1,000 euros).

Bearing in mind that the first step on the path towards reducing the emissions associated with the business activity is to know what the CO_2 footprint of the company is, we believe it is important that medium-sized companies should also publicise these energy data.

With respect to the disclosure of GHG emissions, there is the Pollutant Release and Transfer Register[17] at European level, the Carbon Footprint, Compensation and Absorption Projects Register[18] covering Spain, and the Voluntary Agreement Programme[19] set up by the Generalitat de Catalunya.

5. Establish emission reduction objectives and compensate for emissions that cannot be reduced.

Companies should establish emission reduction objectives that are compatible with the Paris Agreement and the objectives of the European Union, publicise these and compensate for all the emissions that it has not been possible to reduce (generated by the company itself or by the organisation of a congress, etc.). This compensation must be done with transparency and fulfilling all criteria through investment in local or national projects devoted to renewable energy production, reduction of emissions, etc.

The Voluntary compensation of GHG emissions programme[20] is a key initiative set up by the Generalitat de Catalunya. Furthermore, there are

[16] https://www.boe.es/doue/2014/330/L00001-00009.pdf
[17] http://mediambient.gencat.cat/ca/05_ambits_dactuacio/empresa_i_produccio_sostenible/prevencio_i_control_dactivitats/registre_de_contaminants_prtr/el_registre_prtr-cat/
[18] https://www.miteco.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/registro-huella.aspx
[19] https://canviclimatic.gencat.cat/ca/ambits/mitigacio/acords_voluntaris/
[20] https://canviclimatic.gencat.cat/web/.content/03_AMBITS/mitigacio/acords_voluntaris/4_com_adherir_se/documents/190716_Principis-de-compensacio.pdf

certified companies committed to offsetting emissions, such as *Gold Standard*[21].

6. Integrate a realistic price of emissions into company decision-making.

Companies must be realistic when integrating the prices of emissions, including the estimated prices in the future, so that they are taken into account when the company takes long-term decisions.

C. INTEGRATE THE CIRCULAR ECONOMY INTO THE PRODUCTION CHAIN

We must look beyond the current consumption model of "extract, produce, discard" and move towards the gradual implementation of a new circular business model committed to saving and improve efficiency of materials, energy and water, to reducing waste generation, and to providing economic, social and environmental benefits.

7. Present a plan of action on how to adapt to a more circular business model.

In order to facilitate the transition to the circular economy, we believe it is essential that the world of business should present a plan of action on how to adapt to a more circular business model, which should include:

- Drastically reducing the use of plastics
- Reducing waste and improving its management, so that waste can be converted into a new raw material (eliminating single-use products)
- Increasing the percentage of separable raw materials to be reused
- Reducing the presence of toxic products that prevent the reuse of materials
- Using biodegradable materials
- Applying the EU regulations on programmed obsolescence, the useful life and the repairability of products (useful life of EU products[22])
- Selling services instead of goods

These plans of action can also be useful for a future audit of the activity with relation to its energy and environmental impact.

8. Use other indicators of economic wealth.

The transition to a circular economy is not related with negative growth, but with having a higher standard of living with a different growth pattern. Therefore, GDP growth cannot be the principal objective of social progress; alternative indicators of growth should be used, such as the

[21] https://www.goldstandard.org/take-action/offset-your-emissions
[22] https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=OJ:JOC_2018_334_R_0007&from=ES

Social Progress Index (SPI)[23], as well as indicators to evaluate whether this transition is just.

D. MOBILITY

In view of the fact that the transport sector (including domestic civil aviation, road, rail and national maritime transport) is responsible for 28% of all emissions in Catalonia, we propose that the entrepreneurial sector (construction, production and distribution) should make a commitment to reduce CO_2 emissions associated with transport.

Moreover, by reducing transport, we also reduce air pollution, and therefore we are reducing the negative impact that this has on people's health.

To reduce GHG emissions associated with transport, we propose that companies should reduce internal and external mobility, in addition to the mobility of the workers themselves *in itinere.* Furthermore, there is a need for a transition to more sustainable active and/or electric mobility.

9. Incentivise teleworking.

To reduce travelling (to industrial estates and into Barcelona), companies should offer the option of working remotely or from home. Furthermore, teleworking would make it easier to balance work and family life.

Consideration must be given to the need to agree on conditions with trade union representatives: safety in the workplace at home, voluntariness, presence monitoring, provision of the necessary material, etc. Consequently, this line of action can bring new jobs (workplace certifications, software for clocking in online, etc.). For many people, this option still generates considerable debate about the need to differentiate between the spheres of personal life and work.

10. Promote video conferences to reduce air travel.

11. Promote a local food and goods system.

The company can also promote a local system for goods, materials and food products. In this respect, products that originate from very close to where they can be obtained are defined as **locally sourced products**.

12. Promote shared transport to improve workplace accessibility.

For the majority of workers, their places of work are not very accessible by public transport, for example when companies are located on industrial estates. In order to reduce the use of private cars, GHG emissions, air pollutants and traffic congestion, these companies could assume the costs of their workers' transport with sustainable means. These solutions must be achieved through alliances between the different companies involved and the regional authorities.

[23] https://ec.europa.eu/regional_policy/en/information/maps/social_progress

Shared transport can be promoted by organising a bus shared by various companies and also by external services staff – in most cases, these workers are still excluded. This system has been introduced by some companies that did not have their own service in the Vallès Occidental[24].

Shared transport should be organised with green vehicles. One example of green transport is the ***trackless tram***, which has a top speed of 70 km/h and room for 300 people. It works with solar energy and its batteries are recharged during stops at stations. Since it does not use tracks or cables, the introduction of this type of vehicle is a tenth of the cost of a conventional tram.

13. Promote personal electric transportation, such as bicycles and electric scooters.

13. 1. Companies can have **a fleet of personal electric vehicles,** so that their workers can travel from the company to the nearest point of connection with the public transport network, and vice versa (e.g. inside the industrial estate).

13.2. Companies can also **offer their workers financial assistance to promote the use of personal electric vehicles.** In the United Kingdom, for example, the *Cyclescheme*[25] programme is available. Through this programme, workers can save 25-39% on bicycles and accessories.

13.3. In Spain, there are companies that **offer their workers who travel by bicycle a bonus of 0.37 euros per km**. Furthermore, training is organised to remove some of the barriers and misconceptions around bicycle mobility, reinforce good cycling practices and learn about bicycle repair. Bicycle mobility brings benefits, not only with respect to carbon emissions and traffic congestion, but also in terms of the worker's health.

14. Change the fleet of company vehicles to electric vehicles.

In order to reduce emissions associated with the internal mobility of the company, the fleet of company vehicles can be changed or retrofitted to electric vehicles and the company can move towards a fleet of shared vehicles.

In the event that third parties are responsible for the distribution of goods, the company should make a commitment to hiring a company that applies sustainable mobility criteria.

(also see points 28, 34, 36 and 37 in the section "Changes at public institution level")

15. Install electric charging points in company car parks.

[24] https://www.busup.com/
[25] https://www.cyclescheme.co.uk/

In order that companies may make the transition to an electric mobility network that includes both the company's and the workers' vehicles, they can install electric charging points in the company car park, where cars can be charged at no cost to the workers.

16. Generalise the use of rail transport.

Maximise the use of rail transport in preference to transport by road or air, whenever this is possible (e.g. Barcelona-Madrid air shuttle).

17. Implement the transition of goods transport with sustainable vehicles.

In those cases in which goods cannot be transported by train, the transition of the fleet of fossil fuel vehicles can be made to hybrid, biodiesel or electric vehicles.

E. GREEN INFRASTRUCTURE

18. Increase the number of green zones.

Air pollution and the heat island effect have serious consequences for people's health, particularly affecting the most vulnerable citizens (the elderly, children and people with low socio-economic resources). In order to improve air quality and reduce thermal stress, we propose the development of "biophilic" cities. "Biophilic" design refers to the construction of natural systems inside and around buildings. "Biophilic" cities constitute both an adaptation and a mitigation strategy. Furthermore, the presence of green, particularly in the city, is associated with higher productivity and less stress among citizens.

Some of companies' options for greening the city include creating green zones inside or around the company and vertical gardens on their buildings.

For the maintenance of these new green zones, buildings should be adapted/designed so that they can use water without compromising the ecological characteristics of the environment (e.g. without obtaining water from river basins). Therefore, companies (especially those on industrial estates) can begin to install rainwater catchment systems and/or increase initiatives to reuse water in industrial processes[26] and/or obtain regenerated water.

F. COMMUNICATION, SENSITISATION AND EDUCATION

19. Communicate objectives, actions and data to society.

[26]http://www.aeqtonline.com/el-projecte-demoware-per-a-la-reutilitzacio-daigua-industrial-al-centre-de-dow-al-camp-de-tarragona-nomenat-projecte-de-lany-2016-per-environmental-leader/

The communication of objectives, actions and data to the public (workers and citizens) creates the awareness required to achieve systemic change and the modification of society's consumption patterns. To ensure that the information reaches its destination, a visual language that is easy to understand must be used.

19.1. The company itself must foster the transparency of the good practices it follows through sustainability labels, in order to empower citizens in their consumption choices.

Some examples of labels are: the "**Emblem of environmental quality**" (in Catalan: *Distintiu de Garantia de Qualitat Ambiental*), a Catalan system for identifying those products and services with certain characteristics that make them more environmentally friendly; the "**Ecolabel**", which is recognised across Europe and worldwide and certifies that the impacts on the environment of cleaning products, clothes and electronics, among other items, have been kept to a minimum, while taking account of the entire life cycle of the product; the "***Global Organic Textile Standard***", which certifies across the world the use of organic fibres in addition to other social and environmental criteria throughout the production process of textile products; the "**FSC**" (*Forest Management Certification*), which confirms that products containing wood or by-products come from forests that are managed in a way that preserves biodiversity and benefits the lives of workers, while ensuring that economic viability is sustained; the environmental declarations relating to cleaning products (***AISE Charter for Sustainable Cleaning***); and the "**UTZ"** seal, which certifies that companies support sustainable plantations of products such as coffee, tea and cocoa.

19.2. It is also necessary to publicise international objectives such as the SDGs[27], and to talk about the future, about what can be achieved at a global level and what can be saved on a personal level through a change of habits.

19.3. We need to adapt much more quickly to the driving forces of climate change. It is very important that the data and the information that emerge from both the public and the private sector are shared with researchers. Publicising data about mobility, energy and water consumption, waste generation, etc., and making it available to researchers will be very useful for analysing the situation, placing it in a working context and designing new initiatives.

20. Develop the role of advising on and promoting the transition.

20.1. Companies can also develop an advisory role, providing information about availability of sustainable products/services and explaining the potential of change (for example, showing the energy and money that can be saved by changing old household appliances for new ones with an A label).

[27] https://www.un.org/sustainabledevelopment/es/objetivos-de-desarrollo-sostenible/

20.2. Companies can also develop the role of stimulating change and incentivise the good practices of their workers by awarding prizes, for example, to the most sustainable worker. Tools or apps must be developed to measure sustainability and encourage more sustainable habits.

21. Foster education in sustainability.

The academic world has a vital role to play in research and learning. Companies and financial centres must be in close contact with the education sector, so that universities and business schools are encouraged to work within the framework of the transition process (circularity, calculation of emissions, price of emissions in the budget, energy efficiency, sustainable mobility, etc.). Training initiatives in environmental sustainability must also be organised for the company workers themselves (online courses, face-to-face training, etc.).

G. R&D&I

22. Establish collaborations with universities and research centres.

Research is an essential element in making this transition, and companies cannot develop research and innovation on their own. Therefore, it is very important for companies to establish alliances with research centres and universities, as well as with public institutions. Fields that need to be prioritised include research into achieving the decarbonisation of those sectors in which renewable electric energy is difficult to implement, such as cement factories, navigation, steel, etc., and research to achieve the reduction of emissions in agriculture and fishing.

H. FINANCE

23. Integrate climate change into the governance, strategies and processes of financial institutions.

In line with the recommendations of the TCFD (*Task Force for Climate-related Financial Disclosures*) promoted by the G20 Financial Stability Board, financial institutions must incorporate the risks and opportunities of climate change into their management. This line is also defended in the NGFS (*Network for Greening the Financial System*), the network with more than 50 central banks and green finance supervisory bodies, of which the European Central Bank and the Bank of Spain form part.

24. Promote the creation of sustainable financial solutions for all segments of society.

The basis of this proposal lies in financial institutions' adherence to the broad sectoral agreements at an international level, in which the frames of

reference for making substantial progress towards sustainable finance are established, namely:

a) The United Nations Principles for Responsible Banking
b) The Principles for Sustainable Insurance.
c) The Principles for Responsible Investment.
d) The Collective Commitment to Climate Action, the aim of which is to gradually align banks' credit activity with the Paris Agreement, as established in its article 2c.
e) Recommendations of the TCFD[28].

And bearing in mind that companies should turn towards the use of sustainable funding lines, financial institutions must boost the development of sustainable credit and investment solutions, not only in the domain of large companies, but also SMEs and families.

Sustainable financial solutions should be the basic products offered within a maximum of 10 years.

[28] https://www.fsb-tcfd.org/publications/final-recommendations-report/

Changes at public institution level

In order to fulfil the objectives of the Paris Agreement and those established by the European Union, the involvement of administrative bodies is also required. Public institutions must be capable of adapting the legislation on renewable energies, GHG emissions, mobility, circularity, etc., and of guiding society towards a just transition, in a manner that is democratic and participative. Administrative bodies must also set examples of good practices.

This section presents some proposals that can be applied by administrative bodies to tackle climate change with relation to governance, energy transition, mobility, education, innovation, taxation and finance. It is worth underlining that it is the responsibility of institutions to prevent any of these changes from causing more inequality.

A. ENERGY TRANSITION

25. Include sustainability criteria in public procurement.

A good way for public institutions to promote the circular economy and the energy transition is by including circular criteria as requirements in public procurement. For example, by bidding for waste management contracts that are circular, with low emissions, etc. In this way, public procurement with circular criteria spreads new markets, products and services that are sustainable and circular.

26. Adapt public administration to the circular economy and the new energy model.

In order to establish the circular economy and promote the energy transition, it is necessary to transform the Catalan Waste Agency (ARC) into the Catalan Resources Agency, comprising the ARC, the Catalan Water Agency (ACA) and the Catalan Institute of Energy (ICAEN), thereby creating an administrative body that does not manage solid, liquid or gaseous waste, or the generation and consumption of energy, but one that manages material and energy resources over the course of the entire cycle in which they are obtained, processed and recovered. This proposal appears as a measure in the National Pact for Industry[29].

27. Adapt the technical building code to improve the energy efficiency of buildings.

At present, the technical building code[30] (CTE) exists and is applicable to Spain. This code makes it compulsory for new buildings to have thermal solar installations for hot sanitary water. Furthermore, this provision is

[29] http://empresa.gencat.cat/ca/detalls/article/Pacte-Nacional-per-a-la-Industria
[30] https://www.codigotecnico.org/index.php/menu-que-cte/menu-presentacion.html

also regulated by the Ecoefficiency Decree[31] of the Generalitat de Catalunya and the municipal ordinances that regulate the implantation of solar energy capture systems for thermal use in buildings (municipal regulations in Catalonia).

With respect to the use of rainwater and regenerated water, there are no European, Spanish or Catalan regulations, but each municipality applies its own regulations on the use of regenerated water, grey water and/or rainwater tanks drawn from the Ecoefficiency Decree; these regulations are based on the standard ordinance of Barcelona Regional Council[32], and they follow the health criteria established by Royal Decree 140/2003 on the quality of water intended for human consumption, and Royal Decree 1620/2007, which sets the legal framework for the reuse of treated waste water.

Finally, the CTE does not include regulation on the generation of electricity from wind, solar, biogas or biomass sources, or on green infrastructure.

In order to improve the energy efficiency of buildings, and in view of the lack of this content in the CTE, we consider it essential to adapt the building code with respect to the self-production of energy, waste management and water reuse, covering both new construction and refurbished buildings.

28. Maximise the energy efficiency of public administration.

The Generalitat, town and city councils and other public entities must seek to maximise 1) the energy efficiency of all their buildings, 2) the efficiency of public lighting, and 3) the sustainability of mobility (making the transition to fleets of electric or hybrid vehicles and shared vehicles, etc.). This energy transition plan will also make it possible to cut energy costs, gaining more resources to invest in public services.

The Generalitat de Catalunya could make a commitment to achieve schools that are self-sufficient energy-wise and achieve a high level of recycling. This initiative would serve as a showcase of good practices, and at the same time it would raise awareness among the educational community and society in general.

With respect to the town and city councils, a first step they can take towards improving energy efficiency is to sign the **Covenant of Mayors for Climate and Energy**. There are currently more than 600 municipalities in Catalonia that have signed this covenant, undertaking to implement initiatives to reduce greenhouse gas emissions by at least 40% by the year 2030 and to adopt a joint approach to mitigating and adapting to climate change (Covenant Commitment[33]).

[31] https://portaljuridic.gencat.cat/eli/es-ct/d/2006/02/14/21

[32] https://www.diba.cat/documents/63810/508804/xarxasost-pdf-OrdenancaAigua-pdf.pdf

[33] https://www.diba.cat/documents/102577937/111295166/Compromis_Pacte_cat.pdf/5c5c9c49-07b7-4210-bb01-eddfcd38433b

To put this political commitment into practice, the signatories of the Covenant have to draw up a Plan of Action for Sustainable Energy and Climate (PAESC[34]). The PAESC must include an inventory of GHG emissions in the municipality and an assessment of climate risks and vulnerabilities, in addition to the actions that each local entity has to take in order to achieve the objectives established by the EU for 2030.

29. Subsidies for renewable energy.

Public administration must incentivise the energy transition through subsidies for the installation of renewable energy systems (wind, biomass, biogas, solar, etc.), both for companies and private individuals. The subsidies must be designed so as not to exacerbate social inequalities.

30. Adapt the regulatory framework to stimulate the transition to photovoltaic energy.

In the case of photovoltaic systems, the current regulatory framework does not encourage their installation. Examples of incentives for the installation of photovoltaic energy panels are:

30.1. Municipal ordinances that include temporary incentives such as the reduction of IBI (Council Tax).

30.2. Making it easier to obtain the licence to install panels (without it being dependent on a major works licence).

30.3. Development of energy production and self-consumption communities, so that industrial estates can be linked to towns and cities.

31. Ensure that the methodology of the CNMC, the body that regulates the operation of the Spanish electricity market, aligns more closely to the criteria established by the EU.

With respect to the model for the energy transition, the methodology proposed by the National Commission of Markets and Competition (CNMC) to calculate transport and distribution tolls attaches more importance to the fixed rather than the variable term, moving away from the European norm, to the detriment of sustainability and business competitiveness.

32. Establish climate audits for companies that are not obliged to have these at present.

In order to promote the decarbonisation of the market by 2050, public administrations should conduct energy audits that collect information about GHG emissions, renewable energy consumption, energy saving, water consumption and saving, and circularity. RD 56/2016[35] on energy audits, the accreditation of service providers and energy auditors, and the promotion of energy supply efficiency, obliges companies with more than

[34] https://www.diba.cat/documents/102577937/111295166/Metodologia+PAESC_setembre_16.pdf/8004fa8a-1d7a-4771-8327-dad8af824abe

[35] https://www.boe.es/diario_boe/txt.php?id=BOE-A-2016-1460

250 workers to conduct energy audits and identify weaknesses and possibilities for improvement. Public administrations could extend compliance with energy audits to other companies.

33. Subsidies to improve home insulation.

Implement subsidies to improve the insulation of homes and reduce energy costs incurred in cooling and heating homes, applying criteria of equality by assisting the most vulnerable segments of the population with access to these subsidies.

B. MOBILITY

As mentioned earlier, the transport sector is responsible for 28% of all emissions in Catalonia. Therefore, we propose that public institutions undertake to reduce CO_2 emissions associated with transport.

It is worth remembering that investment in sustainable public transport means investment in improving air quality and, consequently, the health of the population. It should also be underlined that these initiatives must be designed so that social inequalities are not exacerbated.

34. Promote sustainable public transport.

34.1. Town and city councils must progressively replace the fleet of buses in the public transport network with hybrid or zero emission vehicles. Furthermore, in order to connect industrial estates with municipalities, **alliances should be formed between companies and local councils to phase in shared public road transport** with hybrid or electric vehicles. In the Vallès region, there are plans to introduce the same bus system that Barcelona has, but in this case connecting the towns and cities of Vallès Oriental and Occidental with their industrial estates vertically and horizontally (https://femvalles.wordpress.com/).

34.2. Public administrations must commit to investment in local rail infrastructure like **Rodalies** and **Ferrocarrils de la Generalitat de Catalunya**, in order to reduce journeys made by petrol/diesel cars from towns outside Barcelona into the city.

34.3. Public administrations must also promote the use of personal transport such as bicycles and scooters (electric or otherwise).

35. Invest in the Mediterranean corridor.

To ensure that goods are distributed by train and not by road.

36. Boost the infrastructure of electric recharging points both in public spaces in cities and in residential buildings.

37. Close off vehicle access to city centres.

Close roads in city centres to vehicles. Only public transport, electric vehicles and bicycles should be allowed access. Alternatively, strategies such as superblocks can be developed, which discourage through traffic and recover urban space for other uses unrelated with fossil fuel-based mobility.

38. Electric taxis.

Taxis are vehicles in constant circulation, and since most of them use fossil fuels, the GHG they emit and the air pollution they cause represents a serious problem. Therefore, it is very important to plan the transition of the fleet of taxis to the point that 100% are electric. Moreover, the production of new taxis, as well as the retrofit of existing taxis, should take place locally.

39. Rotational parking.

Implement vehicle parking policies on public thoroughfares with time limits in residential areas. These types of initiatives discourage non-residents from parking in these areas, given that there is a two-tier price structure for residents and non-residents.

40. Low Emission Zones.

Launch restrictions on polluting vehicles inside cities. One example is an initiative that has come into force on 1 January 2020 in Barcelona in the area near the ring roads (affecting l'Hospitalet de Llobregat, Cornellà, Esplugues and Sant Adrià de Besòs), prohibiting the circulation of 15% of cars and 40% of motorbikes (on working days, from 7 am to 8 pm).

41. A tax on driving into the city centre.

Other types of initiative have been tested in cities such as Milan, London and Stockholm, where citizens have to pay a tax when they drive into the city centre during rush hour. In the case of London (*Congestion Charge*[36]), this initiative has proved successful in reducing traffic in the centre of the city. In the UK capital, there is a charge of 11.5 GBP/car/day (equivalent to 12.80 euros). The problem that arises is that this initiative hits lower income segments of the population hardest. In Milan[37], non-residents pay 5 euros/car/day, whereas residents pay 2 euros and can enter the city centre free of charge 40 times a year. Public transport, health and other service vehicles have free access. In Stockholm[38], the charge is equivalent to 6.5 euros, and electric vehicles, disabled drivers and foreign-plated vehicles, as well as public transport, are exempt from payment.

[36] https://tfl.gov.uk/modes/driving/charges-for-driving-in-london
[37] https://www.areacmilano.it/en
[38] https://www.roadtraffic-technology.com/projects/stockholm-congestion/

C. EDUCATION AND OUTREACH

42. Professional and higher education that take a transversal approach to environmental sustainability.

Public administration should insist that professional training and higher education take a transversal approach to environmental and social sustainability.

43. Communicate good practices and their advantages to promote a cultural change.

Government bodies must promote cultural change, publicising the new good practices and their advantages (economic saving, better quality of air, water, health, etc.), as well as the successful projects or initiatives they have developed to tackle climate emergency.

In this respect, it is very important to rephrase the climate change narrative, using "improve" instead of "remove". In other words, instead of removing cars that use fossil fuel from a single user, taking away their licence or preventing access to the city centre, giving citizens cleaner air and water, greener public spaces and the possibility of community living, and improving their quality of life.

44. Provide information about financing schemes for the installation of photovoltaic panels, electric vehicles, refurbishment of buildings, etc.

45. Labelling of sustainable products/services.

In order to empower citizens when they make decisions about the goods and services they buy, public administration should promote the labelling of sustainable and ecological products (circularity, energy and water consumption, local sourcing, etc.).

46. Publicise data and information.

Universities and research centres should also publicise data and information about water storage, water and energy consumption, transport, emissions generated per inhabitant, generation of waste, etc., with the aim of improving not only the design of new practices, but also citizens' habits. Moreover, increasing public access to information generates trust and proximity.

D. R&D&I

47. Promote innovation in environmental sustainability to be able to experiment with minimal risks.

Innovation is necessary to help us jump from where we are now to where we want to be, and therefore public institutions have a responsibility to

promote and incentivise innovation, including innovation from start-ups, and to align ecosystems.

48. Remove regulatory barriers that stand in the way of innovation in environmental sustainability.

With respect to regulatory barriers, the competent administrative bodies must develop a legal framework that fosters R&D&I in sustainability, with regulations aimed particularly at making processes more efficient and developing clean technologies, while supporting investments. The legislation should create opportunities for experimentation with minimal risks.

A good example of this kind of legislative initiative is the **'Smart Regulation'** programme. On this programme, the Dutch government cooperates with entrepreneurs with a view to finding greater opportunities for experimentation within the current legislation. The programme was begun in response to entrepreneurs who felt restricted by the legislation when they proposed innovative investments.

49. Make cities a space for trying out new concepts and/or technologies.

This transition to a more sustainable society can only be created by experimentation "on the ground", so cities must be capable of leading these changes. For example, to facilitate the application of practical and scalable strategies, the city of Amsterdam has developed various circular programmes that encourage innovation, experimentation and learning. One of these initiatives is the development of "*living labs*". A *living lab* is the place where new concepts and technologies can be validated before they are scaled and implemented in other regions. One such example is the **'De Ceuvel'**[39] project in Amsterdam, one of the most sustainable developments in Europe.

E. TAXATION

50. Tax incentives.

In order to offer incentives to both companies and citizens in the transition to an economic model that is neutral in emissions, the authorities should promote tax incentives like those already offered for innovation in R&D&IT (e.g. deductions to incentivise certain entrepreneurial activities, deductions for R&D&IT projects or discounts on monthly national insurance payments for staff working exclusively in R&D&IT).

51. Green Taxation.

[39] http://www.smartcityembassy.nl/initiative/de-ceuvel-sustainable-urban-development-tour/

The environmental taxation measures currently applied by the EU are very limited, since the EU indicates some guidelines, but leaves the specific regulation of these taxes in the hands of the Member States. However, the Spanish government's *Climate Change and Energy Transition Bill* does not include the creation of any new tax.

The lack of national regulation to levy environmental taxes that can tackle climate emergency also provides an opportunity for regional and local taxes. Some measures that the Generalitat de Catalunya has yet to explore include: taxation of sulphur oxide and carbon dioxide emissions (a tax on air pollution in Catalonia has existed since 2014, but it does not apply to SOx or CO_2); prioritising reuse over selective recycling of waste; increasing tax rates on dumping and incineration; establishing a return on home composting; creation of a tax on dangerous industrial waste; and introducing a tax on thermonuclear production of electricity. Finally, at municipal level, discounts aimed at environmentally sustainable behaviours can be applied to the IBI (Council Tax) and the ICIO (Tax on Constructions, Installations and Building Work), and the use of polluting private vehicles can be penalised.

F. FINANCE

52. Estimate the economic costs of the effects of climate change and the costs of taking action to tackle these.

Furthermore, government bodies should draw up a report on the economic costs of climate change in Catalonia. This should include the potential benefits of climate actions (related with housing, the reduction of air pollution, the promotion of renewable energy sources, etc.), in addition to the health savings obtained from these benefits – probably sufficient to pay for the costs of climate action.

53. Promote the implementation of the actions developed within the framework of the EU's Action Plan on Sustainable Finance and the new Green Deal for Europe.

The central role in implementing these actions falls to European and Member State institutions, but there are also actions and recommendations where the role of regional administrative bodies may be relevant. One example is helping companies to become familiar with the taxonomy or classification of sustainable activities that will be used to promote sustainable finance.

54. Further the use of sustainable finance by administrative bodies.

Administrative bodies must lead by example by promoting the use of sustainable finance solutions, such as the issue of green bonds, social bonds or sustainable bonds. They must also include impact metrics in their credit lines, agreeing on prices with financial entities that are linked with the achievement of objectives.

55. Establish a fund for a just transition.

There is no doubt that the transition will affect certain entrepreneurial activities, and therefore many people will be negatively impacted. This impact will have to be identified, assessed and mitigated through actions. Among these, it is important to establish finance mechanisms so that no one is left behind when making this transition. These mechanisms will be promoted at a national level, but in many cases they will need to be complemented and put into practice at a local level.

56. Establish alliances and collaborations between the public and private sectors.

It is estimated that 90 billion dollars are required to tackle climate action worldwide. However, G20 ministers admit that governments do not have enough money to reach 90 billion. Therefore, private capital is required. The main actors in the green finance initiatives are public-private collaborations, capable of playing a key role in intercommunication between the interests of the market and the priorities of political institutions. In fact, 75% of the members of the *Financial Centre for Sustainability* (FC4S) are public-private collaborations. In this way, the government and the private sector work together to achieve the objectives of climate finance or those of the agenda based on environmental, social and governance criteria (ESG). We welcome the launch of *Barcelona Centre Financer Europeu* (BCFE – European Finance Centre, Barcelona), which has now become part of the FC4S.

On the other hand, the *Green Deal* is an example of how companies, organisations, local and regional governments and other interest groups can work together with central government on sustainable growth issues. The goal is to remove the barriers that currently exist, so as to implement sustainable initiatives and accelerate this process wherever this is possible.

57. Activate a strong financial policy and a regulatory environment to accelerate the escalation of capital.

Private capital will only become involved in sustainable finance if there is a regulatory environment with solid, deep-rooted policies. The regulatory policies and measures of banking, investments, the equity market and insurance have a different range of objectives, including the improvement of consultancy on and evaluation of climate risks, guidance on the issue of green bonds, the development of capital markets and the promotion of microfinance. Most of the regulatory policies and measures implemented aim to improve information flows, above all, openly reporting on the activities of corporations and financial institutions. A strong regulatory environment that incentivises innovation is key. A weak policy would result in a new collapse of the financial system.

Regulation should not only be focused on large corporations, but also on SMEs, where change is also necessary.

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  "...a likely human contribution of 92%–123% of the observed 1951–2010 change. The likely contributions of natural forcing and internal variability to global temperature change over that period are minor (high confidence)."

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