

EU, THE JAPANESE AND SWEDISH CASES

Regulatory Models on Community Energy (CE) in a Multi-Regulatory Approach: Juxtaposing the Global, the EU, the Japanese and Swedish Cases

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I Introduction

The global climate and energy law landscape is rapidly changing. New climate impacts and the development of new energy projects, technological advancements, geopolitical equilibriums, and socio-technological and economic advancements all make their marks. Global, regional, national, and sub-national levels of law and governance increasingly play a key role in the transition from fossil-fuel economy to renewable energy markets. The new climate targets introduced by the Paris Agreement, the Sustainable Development Goals (SDGs), the Glasgow Climate Pact at Conference of the Parties (COP) 26, and the European Green Deal all advocate the participation of citizens and communities in energy transition; the focus is on the bottom-up approach.

Within this changing climate and energy backdrop, new transitional regulatory patterns supporting sustainable energy initiatives are needed to solidly support the passage from fossil-fuels to renewable energy markets and boost behavioural change of the civil society in finding new ways to act in the management, regulation, use and consumption of energy.

This article deals with Community Energy (CE) as a new form of collective energy actions that foster citizen participation across the energy systems. The phenomenon of CE has considerably increased in the recent years developing new practices, policies, regulations, and projects. However, legal frameworks are as yet not totally developed and understood, especially in a regulatory comparative and contextual, systematic fashion. In addition, there has been little analysis on the state of research on the range of governance tools to facilitate energy transition and the implications of these instruments on CE, especially in a long-term viability. This article aims to shed light on the challenges and opportunities to create new regulatory models for CE by analysing methodologically CE in a multi-regulatory approach (global, regional, local and subnational).

Commencing from the global regulatory level with the Paris Agreement and the Glasgow Climate Pact, moving further down to the EU regulatory level, which will represent the main focus of this study, it will take two

national legal orders as ‘legal model cases’: Japan and Sweden. These latter cases are selected as legal models because both their legal orders and governance systems present interesting institutional and regulatory designs that guide climate action across the different levels of governance.

They both present the peculiarity of being ‘hybrid regulatory models’. Japanese and Swedish models can be defined as hybrid models because the national or regional levels of governance work closely with local governments to stimulate two-way learning processes, where both ‘national or top-down actions’ and ‘bottom-up actions’ are key in regulatory climate and energy action.

Conclusions are developed by outlining considerations on how juxtaposing the EU, Japanese and Swedish regulatory models can help as a source of inspiration for new regulatory designs. The regulatory frameworks in the cases examined are conducive as new, sound institutional and regulatory models, providing new knowledge for CE. They lead to a new dialogue, one able to spark new forms of diplomatic collaboration that can go beyond the obvious advantage regarding responses for climate change and energy laws for CE.

II Global Level: The Paris Agreement, Renewable Energy, Community Energy and the Glasgow Climate Pact

For the first time in history, with the Paris Agreement¹ sat in motion on the 4th of November 2016, there is recognition that climate change must be tackled and combatted in a collective way so that not only developed countries but also developing countries must take action.

The Paris agreement builds upon the United Nations Convention on Climate Change² (UNFCCC) and for the first time it brings nations to common cores of

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¹ Paris Agreement, Adopted 12 Dec. 2015 entered into force 16 Nov. 2016 FCCC/2015/L9/Rev.1.

² United Nations Framework Convention on Climate Change (UNFCCC). New York: United Nations, General Assembly, 1992.

EU, THE JAPANESE AND SWEDISH CASES

obligations, including legally binding obligations, of conduct in relation to Parties' National Determined Contributions (NDCs) and an expectation of progression over time.

The Paris Agreement also establishes a common transparency and accountability framework and an interactive process that involves both the 'top-down' and 'bottom-up' process of participation of the civil society and citizens in a collective effort to put forward emissions reduction contributions for the next five-year period.³ The Paris Agreement commands universal or near universal acceptance and is applicable to all. As a result, in 2017 over 190 countries representing circa 99% of global emissions had put forward Intended National Contributions (INDCs).

The aim of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above the pre-industrial levels. As part of the agreement, the decision was made to 'pursue' efforts to limit the temperature increase to 1.5C 'above the pre-industrial levels'. To enhance this goal, appropriate financial flows, a new technology framework based on new infrastructure with low or zero carbon emissions, and the enhancement of capacity building and mobilization of the civil society to achieve a change of behaviour in lifestyle had to be envisaged and put into place.

New patterns of energy production had to be planned with a focus on renewable energies and the way people organized themselves, such as, for example, in 'community energies'. This is also an example of adaptive-mitigations processes to the impact of climate changes that permits society to assimilate societal factors and mentality to be ready to shift to low carbon pathways. The Paris Agreement also contains a new economic global vision defined as 'circular economy', which is a new economic pattern to achieve transition towards low-carbon energy production both by the global community, but also by regional and national contributions and in a both top-down and bottom-up approach. People are not only 'spectators' but also 'protagonists' and 'main actors' at all the levels of governance.⁴ At all the levels, people and local authorities had to come together to create renewable energy solutions in communities in the form of community projects.

With regards to the link between the Paris Agreement and the renewable energy systems and sectors, although renewable energies were at the top of the agenda during the COP 21, which was the one during which the Paris Agreement was adopted, the drafters of the text did not give sufficient attention (in the text) to promoting renewable energy power and systems generation. In the text of the Paris Agreement no clear provisions obliging states to utilize green energies exists.⁵ An appropriate place would have been the NDCs as it would have obliged states to understand how much they would have able to 'adaptive-mitigate' by promoting and shifting toward renewable energy systems and powers and by giving a much stronger role to communities and renewable energy solutions and projects.

Under the shadows of the pandemic, the latest COP 26 was critical to raising the ambition of the NDCs and progress on the transition from fossil-fuels to renewable energies and a sustainable use of our natural resources in line with the SDGs.⁶

COP 26 was convened in Glasgow (Scotland) on 31 October 2021 and was the most important UN climate change meeting since the Paris Agreement was adopted at COP 21 in 2015. COP 26 took place in the context of an increasingly urgent climate crisis.

Science predicts and warns of far greater destruction soon, with a warming situation at 1.1 C above preindustrial levels as all the regions of the world are already experiencing increasingly destructive climate impacts.⁷ Tipping points have already been reached and the window of opportunity for avoiding the most disastrous impacts is closing rapidly: to limit warming to 1.5 C, global emissions must be reduced by 45% by 2030.

COP 26, like all the other COPs, is a Conference that 197 parties agreed to in 1992 at the UNFCCC. Since then, many years have passed without much real progress and there is still a stagnant situation since the signature of the Paris Agreement. Since then, the world community has wasted time. Six years after the signature of the Paris Agreement only a slow progress was achieved, but not that much. For those reasons, expectations at COP 26 were high and this explains why this COP was often defined with the sentence 'our last chance' to avoid the worst impacts of climate change. The intentions before COP 26 was finalized were to broaden the thinking of solutions that were to be developed; to increase funds to vulnerable countries; to convince the most reluctant countries of the need to accelerate decarbonization in order to stay below the 1.5 degrees of temperature increase by the end of the century (and not at 2 degrees as required by the Paris Agreement); and to understand 'science' meaning that this 'half degree is crucial for the next decades because it is crucial for the environment'.

³ S. Cassotta, *The Paris Agreement in Logic of Multi-regulatory Governance: A Step Forward to a New Concept of 'Global Progressive Adaptive-Mitigation'*, Eur. Energy & Evtl. L. Rev. 196–216 (Dec. 2016).

⁴ In this article, it is defined as the 'levels of governance' the levels of sources of law and policy of the global, regional, and national level where the 'global' is represented by the Paris Agreement, the UNFCCC Convention and the SDGs, the 'regional level' by the EU Law, and the 'national level' by both the legal orders of the EU Member States in general, with a specific focus on the Swedish legal order; and the non-EU Member States with a specific focus on the Japanese legal order.

⁵ Cassotta, *supra* n. 3, at 196–216.

⁶ Sustainable Development Goals (SDGs) as Adopted by the United Nations, <https://sdgs.un.org/goals> (accessed 2 Feb. 2021).

⁷ IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C.

EU, THE JAPANESE AND SWEDISH CASES

However, COP 26 was not in reality the point at which the world really began to change the story line of climate change. It was a ‘missed opportunity’. There were a few good achievements, such as the pledge to end deforestation by 2030; the agreement between the US and China to boost co-operation on climate change; and the pledge to cut 30% of methane emissions. Sadly COP 26 has undoubtedly failed to renew the objectives for 2030, which aim to adhere with the limitation of temperature to 1.5 C and to stipulate an agreement on the acceleration of the phase-out of coal.

However, there was one aspect which is encouraging: COP 26 and its outcome, a pact known as the ‘Glasgow Climate Pact’,⁸ is clearly acting as a catalyst for these new forms of community energies, where businesses and people or individual citizens make their own climate commitments. The phenomenon of involvement of civil society promotes new movements that take care and act to change the society from an ‘energy business perspective’. Results are quite tangible and may be a last legacy of the COP 26 summit. Business has demonstrated a willingness to act and to put net zero challenges at the heart of its operations. Real life changes from the bottom-up have a push of strong energy thanks to the Glasgow Climate Pact which recognizes the key role of existing practices on civil society and citizen engagement⁹ in line with the Intergovernmental Panel on Climate Change (IPCC) reports, which explicitly refer to the need for rapid, far reaching and unprecedented changes in all aspects of civil society.

III Regional Level: The EU Green Deal, the EU Climate Pact and Community Energy

Throughout the pandemic, the climate crisis has remained quite high on the Agenda of the EU. EU’s climate policies had to be in line with the Paris Agreement to limit global warming to 1.5 C, with a fair share of global action and based on science. Despite increasing commitments from the EU and the global institutions, estimates still predict that governmental planned fossil fuel production remains dangerously out of synchrony with the Paris Agreement limits. Any chance of staying within 1.5C requires a huge amount of new, renewable energies and in line with the world energy outlook of 2021¹⁰ and as pointed out by a new International Energy Agency (IEA) pathway report,¹¹ wind and solar power need to quadruple.

This is a huge task that will change the whole energy system. Citizens all over Europe need to be engaged to participate to this important endeavour in new forms of energy communities.

All EU people and local authorities have the power to create renewable energy solutions in the form of community energy projects. These projects can be as diverse as European communities themselves and there is not yet a specific pattern of definition of community energy.

The EU has agreed to update its energy policy framework to facilitate transition and deliver the EU’s Paris

Agreement commitments through the completion of a new energy rulebook known as ‘Clean Energy for all Europeans Package’,¹² which marks a significant step towards the implementation of the energy union strategy using 2050 as a benchmark, and through the European Green Deal (EGD).¹³

The European Green Deal was presented by the European Commission as one of the most ambitious packages of measures to enable European citizens and business to benefit from a sustainable green transition with the overall target of becoming the world’s first climate – neutral continent by 2050. The European Green Deal is a policy document aimed at tackling climate change and the EU environmental law challenges and providing that economic growth be decoupled from resources use.

It contains a road map to reduce emissions in all the sectors by at least 50% and possibly 55% by 2030. Most importantly, the EGD deals with a total transformation of our society in the transition from fossil fuel to green energy. It is not merely a law or an environmental programme but much more than that. It is a growth strategy to transform environmental challenges into economic opportunities, one that requires the participation of citizens into renewable energy projects and links with the need to establish community energies.

Community energy (CE) are understood and referred to as a wide range of collective energy actions that involve citizens’ participation in the energy systems and CE projects are characterized by various degrees of involvement in the decision-making and benefits sharing and may describe a community limited by a geographical location or a community of interest.¹⁴

CE can promote energy production or consumption. A passive consumer can become an energy producer and thus a ‘prosumer’, co-owner of renewable energy facilities and consumer energy participant. The concept of prosumer is a new concept, the result of a combination between

⁸ Glasgow Climate Pact of 13 Nov. 2021 Decision-/CP.26.

⁹ Decision -/CP.26, Glasgow Climate Pact, VIII. Collaboration, paras 55 and 66.

¹⁰ International Energy Agency (2021), World Energy Outlook 2021, IEA, Licence: Creative Commons Attribution CC BY-NC-SA 3.0 IGO.

¹¹ SEI, IISD, ODI, E3G, and UNEP. (2021). The Production Gap Report 2021, <http://productiongap.org/2021report>.

¹² European Commission, Directorate-General for Energy, *Clean energy for all Europeans*, Publications Office, 2019, <https://data.europa.eu/doi/10.2833/21366>.

¹³ Communication from the commission to the european parliament, the european council, the council, the european economic and social committee and the committee of the regions The European Green Deal, COM/2019/640 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN>.

¹⁴ G. Walker & P. Devine-Wright, *Community Renewable Energy: What Should it Mean*, 36(2) Energy Pol’y 497–500 (2008).

EU, THE JAPANESE AND SWEDISH CASES

production and consumption.¹⁵ Some examples of CE are energy cooperatives, eco-villages, small scale heating organizations. The reasons why it is smart to link CE to climate change is obvious: it is a way to reach social transition from the bottom up by adopting new forms of cooperation for new energy needs that were already there in the past but that now are formalized and legally recognized to cover energy needs. So, it is a form of transition. With the participation in the so-called CE projects, energy persons are involved and can support the European Green Deal to achieve the well-being and health of EU citizens and future generations by cutting energy bills with ‘prosuming renewable energy with zero’² There is not yet a commonly agreed definition in the literature of CE. To contribute to filling this gap, looking at the multi-regulatory levels and how they may play a role to shed light to an agreed, uniform and harmonious definition would certainly help to understand what is needed to build a common definition and what may be considered as a barrier or a challenge within CE, especially under the umbrella of the EU framework, but also at national level with the samples of Sweden and Japan.

At EU level, to make the EGD actionable and concrete, other specific tools were developed, such as the European Climate Pact,¹⁶ and the European Climate Law.¹⁷ The European Climate Pact is a kind of partnership between the EU and its institutions on the one hand, and between the EU citizens who can become climate ambassadors and launch various initiatives and proposals on the other hand. This is really about interaction between institutions and citizens in the EU.

The European Climate Pact facilitates citizens’ and communities’ engagement and empowerment towards climate neutrality. Another of these very important instruments is the European Climate Law and a binding EU 2050 target of climate neutrality that is a collective goal to be realized in a collective way. The European Climate Law proposed in March 2020 is a binding EU target where at least 55 % of emissions must be reduced by 2033. In addition, in July 2021, the European Commission presented a comprehensive package of legislative proposals,¹⁸ which set the course for the EU to reach its ambitious new Greenhouse Gas Emissions (GHGs) reduction in a fair, cost effective and competitive way. The EGD depicts citizen’s participation very briefly and in a more diffuse manner and it mentions the local communities only in the context of the European Climate Pact and as part of a dialogue and not mentioning the public participation of citizens in energy projects. There was not much progress in terms of concrete actions for community participation in the EGD. However, the European Climate Law addresses public participation more specifically.

IV Focus on Community Energy in the EU Model

The drivers and barriers to developing a regulatory framework for CE energies vary across levels of sources of law and policy in the multi-regulatory structure of governance

(global, regional, and national) and across EU and non-EU countries. The EU level is relevant to understand what may play in the success of a regulatory framework for renewable energy projects. CE renewable energy projects are understood as projects that are implemented and which create benefits for the local communities, economic and social transition needs to a low carbon society. CE renewable energy projects can also be understood as a model of project’s regulation that can establish legal parameters needed to compare with other non-EU countries, such as the Japanese model which will be analysed in next section 5.

Juxtaposing the EU model with the two-case study of Swedish and Japanese legal orders in developing CE aims to illustrate how community renewable energy projects in each country were developed in a top-down and bottom-up approach and to shed light on which actors and factors have been the main drivers of enablement or constraints for the development of CE projects, also at the EU level.

At EU and a national level, problems of access to grid, access to finance or type of processes have been detected as constraints of success but these obstacles can be removed by improving the legal frameworks and the policies. In that sense, for example, focusing on the EU level, it is worth noticing that Member States have the duty to introduce and implement the legal framework of the revised Renewable Directive 2018/2001/EU¹⁹ (known as ‘Directive Renewable Energy Directive (RED) II’) and that every EU citizen and community has the right to be part to energy projects.

This Directive would be important to incentivize citizens and local communities to participate in energy projects and create the right conditions or enable CE to flourish by creating groups that participate directly to Europe’s energy transition and face the climate

¹⁵ With regards to the concept of ‘prosumer’, it is worth noticing that nowadays, many consumers are playing a more active role in the energy markets representing a combination of production and consumption of energy. ‘Prosumer’ is thus a broad term because modern energy consumers do more than just consume and produce, they also provide crucial grid services e.g., such as storage and demand response.

¹⁶ For the European Climate Pact see at, https://ec.europa.eu/clima/eu-action/european-green-deal/european-climate-pact_en.

¹⁷ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (‘European Climate Law’) PE/27/2021/REV/1, OJ L 243, 9 July 2021, p. 1–1. For the European Climate Law, see also at, https://ec.europa.eu/clima/eu-action/european-green-deal/european-climate-law_en.

¹⁸ For the EU series of package of legislative proposals launched in July 2021 by the European Commission, see at, https://ec.europa.eu/clima/eu-action/european-green-deal/delivering-european-green-deal_en.

¹⁹ Directive (EU) 2018/2001 of the European Parliament and the Council of 11 Dec. 2018 on the promotion of the use of energy from renewable sources, OJL 328, 21 Dec. 2018.

EU, THE JAPANESE AND SWEDISH CASES

crisis that demands climate action's gaps to be closed immediately.

The EU level has attempted to tackle the gap of absence of definition of the concept of CE by promoting the means that CE are 'the economic and operational participation and/or ownership by citizens or members of a defined community in a renewable energy project'. There are two main formal definitions of CE in the EU law, which are provided by two distinct directives: the first definition is the one which defines CE as 'citizen energy community' and which is contained in the EU revised Internal Market Directive 2019/944 (also known as the 'IMD Directive'); the second definition defines CE as 'renewable energy communities' and it is the definition included in the above-mentioned Directive RED II.

It is important to note that citizens can participate in energy projects in various ways: they can join energy projects such as large wind energy projects both as producers or investors, for example. In the case of Denmark, for example, the Danish Renewable Energy Act establishes that wind power projects must be owned at least by 20% by local people.²⁰

According to the definition of CE in Danish law, the purpose is to provide local actors with 'environmental, economic or social community benefits rather than providing economic gain'. The same is stated in the Electricity Directive of 2019 in its preamble recital no. 43: 'Energy communities give all consumers the opportunity to have a direct interest in the production, consumption or sharing of energy'.²¹ Energy community initiatives place particular emphasis on providing low-cost energy of a certain kind, e.g., renewable energy, to their members or shareholders, rather than to making a profit, as is the case with a traditional electricity company.

Citizens can also take full ownership of local energy assets, as in the case of cooperatives. One of the main characteristics of citizens at EU level is that they are recognized as 'non-commercial market actors' whose main goal is to provide socioeconomic or environmental benefits. The definition of the CE enshrined in the new Directive RED II also includes the proximity requirement.²²

In line with the Clean Energy Package, there is a recognition for the first time of the rights of citizens and communities to engage directly in the energy sector and to formally set out legal frameworks for certain categories of CE such as 'communities' energy'. The main distinction between Directive RED II and the IMD Directive is that the first covers renewable energy communities, while the second introduces new roles and responsibilities for 'citizen's energy community' in the energy systems covering all types of electricity (not only pertaining to the renewable energies).

In substance, the Directive RED II requires Member States to provide an enabling framework promoting and facilitating the development of renewable energy communities as a way to expand renewable energy. Member States are also required to take renewable energy communities into account when designing their renewable energy support schemes.

In the IMD Directive, the enabling framework is intended more to create a level playing field for citizens energy communities as new market actor. Both directives allow for different legal organizational forms of CE (i.e., associations, cooperatives, and others) through a legal entity. CE are incorporated as non-commercial types of market actors that combine non-commercial economic aims with environmental and social community objectives.

Citizen's energy communities are new type of entities due to their membership, governance requirements and purposes. Membership defines an energy community in law and makes it necessary to provide the basic criteria for their membership. For example, in the EU model a first criterion of membership is 'voluntary membership', meaning that nobody should be forced to join an energy community or to leave a community energy project.²³

With regards to governance, participation should be 'open and voluntary'. In the Directive RED II, participation in renewable energy projects should be open to all potential local members based on the non-discrimination criteria. As to the purpose, the primary purpose is to generate social and environmental benefits rather than focus on financial profits. CE can be object of different activities, such as for example, to perform both traditional activities and engage in new business.

Usually, CE can be, for example, generation, supply, consumption, distribution, energy services, electro-mobility, and other activities (such as consultation services to develop community ownership initiatives or to establish local cooperatives, information and awareness raising campaigns).

The EU model of CE can be considered as a benchmark to create a legal environment for CE, taking into consideration important issues such as membership, non-discriminatory treatment, barriers, support schemes and grid management.²⁴ For example, membership at EU

²⁰ M. Oteman, M. Wiering & J. Helderma, *The Institutional Space of Community Initiatives for Renewable Energy: A Comparative Case Study of the Netherlands, Germany and Denmark* Energy, Sustainability and Society 4, 11 (2014).

²¹ Directive (EU) 2019/944 of the European Parliament and the European Council of the 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU, recital (43).

²² The 'proximity requirement' is contained in Art. 2(16) of Directive RED II which defines CE as 'a legal entity: (a) which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity'. Directive (EU) 2018/2001 of the European Parliament and the Council of 11 Dec. 2018 on the promotion of the use of energy from renewable sources, OJL 328, 21 Dec. 2018.

²³ D. Frieden et al, *Collective Self-consumption and Energy Communities: Trends and Challenges in the Transposition of the EU Framework*, Working Paper (Dec. 2020).

²⁴ See M. M. Sokołowski, *Renewable and Citizen Energy Communities in the European Union: How (Not) to Regulate*

EU, THE JAPANESE AND SWEDISH CASES

level is considered as voluntary meaning that nobody should be considered forced to take part in a CE. The non-discriminatory treatment is relevant as it covers fair, proportionate and transparent procedures and charges, including registration and licensing of energy installation. The EU model is also aimed at eliminating the barriers, which could be administrative, bureaucratic or financial requirements.

The EU also has a system support scheme, known as the FIT schemes (Feed – in Tariff Payments) schemes, aimed at businesses generating electricity, using methods that do not deplete natural resources and which offer cash payments to households that produced their own electricity using renewable technologies, such as solar Photovoltaics (PV) panels or wind turbine, which may be adjusted in a way that it is beneficial for the citizens and community-based projects.²⁵

Also, in terms of grid management, the EU offers the possibility of applying a simple notification procedure for grid connections of installations with light costs. Furthermore, under EU energy law CE can be entitled to own, establish and purchase or lease a distribution grid and autonomously manage it.

Even though the EU model can be considered as a benchmark to establish a legal framework enabling the development of CE, there is still room for improvement in terms of commitments and in the capacity of creating collective mechanisms to encourage more development of CE. According to official documentation from the EU level, it seems that there is limited commitment to collective or communities' participation in the sustainable transition of the energy systems.²⁶

Relevant key actors in the process between countries (depending on the size of the governing system) are ministries and governments. The national level is responsible to set up long-term strategies and climate action plans in line with the EU directives in renewable energy legislation. Municipalities, national authorities, and local authorities give rules and technical conditions, such as local spatial plans, zone planning rules in the case of photovoltaics parks, or wind parks.

There are differences between countries, such as, for example, Germany, which due to its federal structure is a decentralized energy planning system.²⁷ Citizens, communities, and local authorities play a key role in the deployment of energy projects, as can be found in Germany and Denmark.²⁸

Also, funding opportunities are needed for CE projects. CE projects require great financial resources, right from the planning and set-up phase, and local communities usually lack finances. In some EU countries, investment grants are in place, with a role played by enterprises and municipalities or farmers but not for communities or cooperatives.²⁹ This certainly means that the development of sustainable long-term financial instruments to enable CE to develop is much needed.

The European Green Deal (EGD) indicates a regress in the development of CE and commitments meaning

that plans have not always been converted into actions.³⁰ Many Member States are slow in developing regulatory frameworks, except for Germany and Denmark that seem to have been pioneers in community energy legal frameworks across European countries.³¹ There is still a need to create the right conditions and understand what are the actors and factors that can lead to an effective legal framework and guide toward energy transition in a fast and popular way and act against climate change.

V Community Energy in the Japanese Model

Although CE (*enerugikomyuniti* – or *enekomi*)³² are not formally recognized in Japanese legislation, they are already a part of the Japanese energy sector.³³ This represents a new wave of prosumer movements in Japan fuelled by Renewable Energy System (RES) (mainly PV), which are becoming more competitive and customizable in terms of scale. Furthermore, the decentralization trend currently underway in Japan's energy sector cannot be overlooked.³⁴ This is shown in the development of municipal power producers and suppliers (small-scale organizations serving local areas), which are regarded entrants in the liberalized retail sector and have emerged as a result of the

Community Energy in National Laws and Policies, 38(3) *J. Energy Nat. Resour. Law* 289.

²⁵ The Feed-in Tariff (FiT) scheme has been considered as an effective economic tool for the promotion of active investment, deployment and utilization of Renewable Energy Sources (RES) worldwide. Within this scheme, large energy providers offer long-term contracts to smaller-scale Renewable Energy (RE) producers to sell their generated renewable electricity to the market under a fixed tariff above the market rate. A. Pyrgou et al., *The Future of Feed -in Tariff (TIF) Scheme in Europe: The Case of Photovoltaics*, Energy Policy (Aug. 2016).

²⁶ R. Fernandez, *Community Renewable Energy Projects: The Future of the Sustainable Energy Transition?*, 56(03) *Int'l Spectator* 87–104 (2021).

²⁷ Report, *Policy Recommendations for Renewable Energy Communities' Developments* Baltic Sea Region, White Paper 15 (2020).

²⁸ Fernandez, *supra* n. 26.

²⁹ Report, *supra* n. 27, at 21.

³⁰ Fernandez, *supra* n. 26, at 87–104.

³¹ A. Caramizaru & A. Uihlein, *Energy Communities: An Overview of Energy and Social Innovation*, EUR 30083 EN, Publications Office of the European Union, Luxembourg (2020) ISBN 978-92-76-10713-2, doi:10.2760/180576, JRC119433.

³² In Japanese: エネルギーコミュニティー (*enerugikomyuniti*) or エネコミ (*enekomi*).

³³ M. M. Sokołowski, *Models of Energy Communities in Japan (Enekomi): Regulatory Solutions from the European Union (Rescoms and Citencoms)*, 30(4) *Eur. Energy Envtl. L. Rev.*, 149 (2021).

³⁴ *Ibid.*, at 159.

EU, THE JAPANESE AND SWEDISH CASES

energy liberalization brought by reforms which went into effect in April 2016.³⁵ At that time, there were around 1,000 community-owned energy installations (with a total capacity of 89 MW) in Japan in 2016, the majority of which were solar power (984 projects/42 MW), with thirty wind power plants (46 MW) and ten small-scale hydropower facilities (1 MW).³⁶ As of 2017, more than 200 organizations had been formed in anonymous partnerships and other forms to engage in joint prosumer projects of a renewable nature.³⁷

Nevertheless, the first citizen-funded projects appeared in Japan as early as in 1990s. The first Japanese solar power plant, owned and financed cooperatively by local residents, was constructed in 1994.³⁸ This is consistent with the significant improvements in solar energy that occurred during the 1980s and 1990s under the successful framework of the New Sunshine Program and its predecessors. In terms of community-owned wind power, its operation began in 2000s, with Hokkaido Green Fund's installations launched in 2001.³⁹ This was followed by community wind projects established in the north of Honshu, in the prefectures of Aomori and Akita, through the Green Energy Aomori and Japan Green Fund.⁴⁰

In terms of the scale of these projects, among other examples of renewable citizen investments one may locate both smaller communities like Bizen city in Okayama prefecture (Bizen Green Energy Fund),⁴¹ and in bigger municipalities like Kawasaki city (Citizen-Initiated Power Station Project).⁴² Among them, one may find entities that not only sells power to the inhabitants, but also promote a home energy management system that monitors power consumption and considers investing in its own local grid, as in case of Miyama Smart Energy.⁴³ Apart from urban types of communities, focused on increasing the energy efficiency of the use of electricity and heat in facilities and buildings,⁴⁴ these are also rural-type communities.⁴⁵ They could be linked to the Japanese idea of 'the Village Energy Management System' (VEMS) aimed at optimizing the use of local energy resources as well as 'farming photovoltaics'⁴⁶ or 'agrivoltaic systems',⁴⁷ also to revitalize abundant rural areas, as under the Act on Promoting Generation of Electricity from Renewable Energy Sources Harmonized with Sound Development of Agriculture, Forestry and Fisheries passed in 2013.⁴⁸

In this way, over time, the growth of these types of structures has been linked to various policies and incentives, such as the New Sunshine Program.⁴⁹ Nevertheless, the PV market in Japan has stagnated or possibly deteriorated as solar subsidies have been reduced and eventually discontinued.⁵⁰ The Renewable Portfolio Standard (RSP) legislation imposed an obligation on utilities in 2003 to supply fixed percentages of electricity generated each year from solar, wind, biomass, geothermal, or small hydropower,⁵¹ but when compared to the EU, the Japanese targets were very low.⁵²

³⁵ T. Ando, *A Study of Municipal Power Producer and Supplier Projects and the Ideal Business Style for Local City*, 45(4) *J. Jpn. Sol. Energy Soc* 61 (2019).

³⁶ J. Raupach-Sumiya, *Consumer (Co-)Ownership in Renewables in Japan*, in *Energy Transition: Financing Consumer Co-Ownership in Renewables*, 637, 641 (Jens Lowitzsch ed., Palgrave Macmillan 2019).

³⁷ *Ibid.*

³⁸ *Ibid.*

³⁹ S. Furuya, *The Pioneer of Community Wind in Japan*, <https://www.energy-democracy.jp/264> (accessed 6 Feb. 2022).

⁴⁰ Y. Maruyama, M. Nishikido and T. Iida, *The Rise of Community Wind Power in Japan: Enhanced Acceptance Through Social Innovation*, 35(5) *Energy Pol'y* 2761, 2765 (2007).

⁴¹ K. Izutsu, M. Takano, S. Furuya & T. Iida, *Driving Actors to Promote Sustainable Energy Policies and Businesses in Local Communities: A Case Study in Bizen City, Japan*, 39(1) *Renew. Energy*, 107, 111 (2012).

⁴² Kawasaki International Association (KIAN), *Overview of the Citizen-Initiated Ohisama ('Mister Sun') Solar Power Station*, <https://www.kian.or.jp/en/topics/solar-power-gen.shtml> (accessed 10 Feb. 2022).

⁴³ J. Raupach-Sumiya, *Marketing Renewable Energy in Japan, in Marketing Renewable Energy: Concepts, Business Models and Cases*, 375, 391 (Carsten Herbes & Christian Friege eds, Springer 2017).

⁴⁴ Government of Japan, 'Long-Term Strategy Under the Paris Agreement', 11 June 2019 p. 55.

⁴⁵ Sokolowski, *supra* n. 33, at 153–154.

⁴⁶ The alternative name used is 'solar sharing' (in Japanese: ソーラーシェアリング, *sōrāsheadingu*), see Tomoya Kamata, 我が国における営農型太陽光発電の現状 [*Current Status of Farming Photovoltaics in Japan*], 29(2) *J. Arid Land Stud.* 75 (2019).

⁴⁷ See H. Dinesh & J. M. Pearce, *The Potential of Agrivoltaic Systems*, 54 *Renew. Sust. Energ. Rev.* 299 (2016).

⁴⁸ In Japanese: 農林漁業の健全な発展と調和のとれた再生可能エネルギー電気の発電の促進に関する法律 [nōrin gyo-gyō no kenzen'na hatten to chōwa no toreta saisei kanō enerugi denki no hatsuden no sokushin ni kansuru hōritsu]. This legislation intensifies collaboration among municipalities, the energy industry, agriculture, forestry, and fisheries, as well as local residents, to increase the vibrancy and sustainability of rural regions, driven by the development of RES generation there. This system, which aimed to revamp rural areas through renewable projects, introduced a framework of policies adopted at the ministerial level, as well as municipal plans based on them, influencing investors willing to build RES within a given municipality, thereby creating a system of approvals.

⁴⁹ See Ch. Watanabe, *Identification of the Role of Renewable Energy: A View from Japan's Challenge: The New Sunshine Program*, 6(3) *Renew. Energy* 237.

⁵⁰ See S. Chowdhury, U. Sumita, A. Islam & I. Bedja, *Importance of Policy for Energy System Transformation: Diffusion of PV Technology in Japan and Germany*, 68 *Energy Pol'y* 285, 289 (2014).

⁵¹ T. Fraser & D. P. Aldrich, *The Fukushima Effect at Home: The Changing Role of Domestic Actors in Japanese Energy Policy*, 11(5) *Wiley Interdiscip. Rev. Clim. Change*, e655, 3 (2020).

⁵² Sokolowski, *supra* n. 33, at 150.

EU, THE JAPANESE AND SWEDISH CASES

Furthermore, the Residential PV System Dissemination Program was discontinued in 2005, resulting in a decline in the Japanese PV market.⁵³ Introduced FIT scheme was to change it, however, over the time the FIT rate for PVs has recorded cyclical reductions: at the time of the system launch it accounted for 42 JPY/kWh in 2012, while in 2019 it went down to 24 JPY/kWh (for residential installations below 10 kW).⁵⁴

In this context, the expansion of CE in Japan demands the development of an adequate regulatory framework, given that voluntary incentives have not always been effective,⁵⁵ resulting in energy policy failures.⁵⁶ Based on the experience of its member countries, the European Union has developed a model⁵⁷ that, with appropriate adaptation, may be applied in Japan.⁵⁸ This is especially true for solutions provided to European energy communities in terms of previously non-discriminatory treatment, administrative barriers, support schemes, and grid connection.⁵⁹ Despite considerable progress in their market position of energy consumers, there is still potential for development regarding their active position in the electricity market.⁶⁰

Grid concerns relating to the connecting of new entities are among the impediments, however some improvements, as under the Act for Establishing Energy Supply Resilience⁶¹ which provided the local grid isolation scheme and authorized the aggregator business Virtual Power Plants (VPPs) in June 2020 introduced should be noted.⁶² Furthermore, due to the limited FIT scheme classes (10 kW and >10 kW), community energy projects face the problem of non-adjustment to scale, which means that medium-scale projects, such as those ranging from 100–500 kW, are considered large when it comes to meeting similar terms of project management, financing, and economic feasibility.⁶³

The 2020 vision of carbon neutrality, with a goal to reduce GHG gas emissions in Japan to net zero by 2050,⁶⁴ is a framework that may strengthen CE's position in Japan. To reach these goal Japan offers a collaborative approach realized at different levels by different stakeholders, both consumers and local governments,⁶⁵ promoting cooperation between public and private actors.⁶⁶ Such incentives as 'Circulating and Ecological Economy' based on cooperation of regional communities utilizing their resources in a sustainable way to become self-reliant (as much as possible), and being connected in a network of communities⁶⁷ aimed at reaching decarbonization and sustainable development,⁶⁸ creates a space for improvements in terms of CE.⁶⁹ In this scope Japan plans to create a network of network of sustainable regional communities (carbon neutral communities)⁷⁰ – agricultural (farming, fishing, forestry) and urban communities based on renewable generation and smart grids.⁷¹

Another approach that can improve CE in Japan is a community-based initiative comprised of local authorities, entrepreneurs, and residents aimed at transforming abandoned farms into large-scale PV installations⁷² as well as building resilient CE that can improve disaster prevention – enhancing self-sufficiency⁷³ by utilizing smart grids, energy storage (batteries), fuel cells, and

cogeneration, in conjunction with demand response and VPPs.⁷⁴ It is also worth noting the role that hydrogen, as promoted in Japan through the Basic Hydrogen Strategy,⁷⁵ may play in energy communities.⁷⁶

⁵³ S. Myojo & H. Ohashi, *Effects of Consumer Subsidies for Renewable Energy on Industry Growth and Social Welfare: The Case of Solar Photovoltaic Systems in Japan*, 48 *Jpn. Int. Econ.*, 55 (2018).

⁵⁴ See Y. Sakuma, *VPP/EV Aggregation Project in Japan*, 8 Oct. 2019 Tokyo, 13, <https://www.nedo.go.jp/content/100898203.pdf> (accessed 10 Feb. 2022).

⁵⁵ See G. Lu, M. Sugino, T. H. Arimura & T. Horie, *Success and Failure of the Voluntary Action Plan: Disaggregated Sector Decomposition Analysis of Energy-Related CO₂ Emissions in Japan*, 163 *Energy Pol'y* 112850 (2022).

⁵⁶ See M. M. Sokołowski & R. J. Heffron, *Defining and Conceptualising Energy Policy Failure: The When, Where, Why, and How*, 161 *Energy Pol'y* 112745 (2022).

⁵⁷ See M. M. Sokołowski, *European Law on the Energy Communities: A Long Way to a Direct Legal Framework*, 27(2) *Eur. Energy Envtl. L. Rev.* 60 (2018).

⁵⁸ See Sokołowski, *supra* n. 33.

⁵⁹ *Ibid.*

⁶⁰ See A. Chapman & K. Itaoka, *Curiosity, Economic and Environmental Reasoning: Public Perceptions of Liberalization and Renewable Energy Transition in Japan*, 37 *Energy Res. Soc. Sci.* 102 (2018).

⁶¹ In Japanese: エネルギー資源エネルギー安全保障, *enerugi kyōkyū kyōjin-ka-hō*.

⁶² Sokołowski, *supra* n. 3, at 156.

⁶³ Raupach-Sumiya, *supra* n. 36, at 642.

⁶⁴ See H. Ohta, *Japan's Policy on Net Carbon Neutrality by 2050*, 13(1) *East Asian Pol'y* 19 (2021).

⁶⁵ See Strategy, *supra* n. 44, at 17.

⁶⁶ See *ibid.*, at 16.

⁶⁷ Compare H. D. Silva & A. Kuriyama, *Challenges for Realising Japan Long-Term Strategy for Decarbonisation Under the Paris Agreement, and the Role of Scenarios*, IGES Working Paper 6 (Dec 2020), https://www.iges.or.jp/en/publication_documents/pub/discussionpaper/en/11101/MCS2020rev.pdf (accessed 6 Feb. 2022).

⁶⁸ Strategy, *supra* n. 44, at 18.

⁶⁹ Sokołowski, *supra* n. 33, at 153.

⁷⁰ Strategy, *supra* n. 44, at 18–19.

⁷¹ *Ibid.*, at 54.

⁷² *Ibid.*, at 55.

⁷³ Energy self-sufficiency, along with the economic disaster recovery, are among the main reasons for the involvement of Japanese communities in local renewable projects, see C. Hager & N. Hamagami, *Local Renewable Energy Initiatives in Germany and Japan in a Changing National Policy Environment*, 37(3) *Rev. Pol'y Res.*, 386, 400 (2020).

⁷⁴ See Strategy, *supra* n. 44, at 55.

⁷⁵ Ministerial Council on Renewable Energy, Hydrogen and Related Issues, 'Basic Hydrogen Strategy', 26 Dec. 2017.

⁷⁶ See D. Parra, M. Gillott & G. S. Walker, *Design, Testing and Evaluation of a Community Hydrogen Storage System for End User Applications*, 41(10) *Int. J. Hydrog. Energy* 5215 (2016).

EU, THE JAPANESE AND SWEDISH CASES

VI Community Energy in the Swedish Model

In June 2017, the Swedish Parliament decided on a climate policy framework, setting out the implementation of the Paris Agreement and by 2045 it is to have a zero net emission of greenhouse gases. According to the Swedish Climate Act, the government's climate policy must be based on the climate goals and the government is required to present a climate report every year in its budget bill.

Climate policy goals and budget policy goals must work together. Sweden is also the country of smart cities,⁷⁷ which makes it an interesting model for CE. Swedes use three times as much energy as the global average to combat the cold climate and power their high-tech society but living in cities is potentially also more energy efficient. The need for sustainable cities and CE in line with the SDGs is therefore very important, and not only in Sweden, but at all the levels of governance, as noticed in the previous sections.

Sweden is an interesting model to focus on when analysing the legal framework of CE, not only because it is a high-tech society, but also because it represents a legal order and a governance system that can guide climate action under the form a 'hybrid regulatory model'.⁷⁸ In addition, it presents the singular situation in having a high share of renewable energy in its territory but also, paradoxically a weak development of CE.⁷⁹ However, Sweden has made considerable progress in energy transition. A steady transition began in 1980 and by 2015, 54% of total energy usage came from renewable energy fuels increasing to 65% -70% in the heating and electricity sectors. Most of the responsibilities and level of interest is in the municipal level, as it is the municipalities that have a strong role in energy transition and renewable energy projects, mainly through self-governance, taxation rights and planning. However, CE projects in Sweden have not yet been mapped out and even though there are a lot of local governments⁸⁰ and environmental policies in the hands of municipalities,⁸¹ the electricity market in Sweden is centralized with few dominant utilities and has little contact between utility and users. As noticed previously, an important aspect in the development of CE projects is to increase citizen engagement in energy production, which for example in the UK has been implemented through the 'Community Energy Strategy' published by the Department of Energy and Climate Change in 2014. This strategy points out that individuals and local communities are 'important' in maintaining energy security, tackling climate change and keeping down costs for consumers, which could be a source of inspiration for Sweden that does not have projects of this type.

Sweden's total electricity production in 2015 is 47% hydroelectric power plants, 34% nuclear plants, 10% wind power and 8% combined hit and power and historically it presents low and stable energy prices both for heat and electricity. Thus, a high share of renewable energy, a

centralized energy production and strong involvement from the local governments at the level of the municipalities in energy production and low energy prices make Sweden an interesting case on how CE and their regulatory frameworks could be developed.

A study⁸² identified 140 active CEs in Sweden with a total generating capacity of 160 MW of which most is from wind cooperatives with a smaller amount of solar energy. The most common form of organization in energy projects in Sweden is under the form of incorporated association (90), non-profit cooperatives, the 'samfällighet' (20), tenant-owned apartments, cooperative housing, called *bostadsrättsföreningar* (10) and non-profit organizations (4).

As regards the above, it would be important to design new regulations and a legal framework for CE in Sweden in a timely manner. The development of CE in Sweden is late compared to all the other EU countries (Germany,

⁷⁷ By 2050 two-thirds of the world's population will live in cities, according to the UN, and Sweden has one of the faster rates of urbanization in Europe. The capital of Stockholm is growing so quickly that all kinds of challenges need to be met. In the developing world, the solution has often been to build more homes on forest and farmland, but in 1995 the city of Stockholm decided instead to find the world's first urban national park and protect its green spaces. Old industrial areas have been and are being redeveloped as efficient low-energy housing, and the city has extended its tram routes.

⁷⁸ See s. 1. Introduction of the present article.

⁷⁹ There is no regulatory framework for energy communities, only measures for self-consumption. Collective self-consumption within a building is allowed if all apartments belong to the same grid connection but not when the electricity is transported over a grid covered by grid concession. In Caramizaru & Uihlein, *supra* n. 31, at 10.

⁸⁰ There are 260 local governments ('communes') and 21 'regions' in Sweden. The Stockholm region has twenty six municipalities and the main area of responsibility of a municipality are childcare, elderly care, schools, social services, emergencies, environment, waste collection and housing. The regions have responsibility on health care, communications, infrastructure and regional development. D. Young, *Local Government in the Nordic and Baltic Countries – An Overview Revised Version*, SKL International, Sweden, Sverige 68–78 (2020).

⁸¹ The goals of a Swedish municipality are that 'the development should be sustainable', the impact on the environment must be reduced, and the ability of the *citizens and* the companies to choose between sustainable options should increase. The concrete actions of the municipality are recycling, collection of food waste, increased use of fossil free energy, reduction of chemicals and plastic products, nature protection, biodiversity, water protection, measures against overfertilization, sustainable consumption and procurement and raising of environmental awareness. L. Vargö, *Symposium Presentation Climate Change and Environmental Policies*, Institute for Security and Development Policies (ISDP), Stockholm (21 May 2021) Sweden.

⁸² D. Magnuson & J. Palm, *Come Together – The Development of Swedish Energy Communities*, Sustainability 11, 1056, at 1–19 (2019).

EU, THE JAPANESE AND SWEDISH CASES

Denmark, UK and Greece) and one important explanation could be that the Swedish energy market is dominated by two centralized powers: hydropower and nuclear power. Swedish local authorities have very few initiatives that engage and enrol the citizens in energy systems. The way regulation could change or has changed had an impact in Sweden, as we have noticed, with a Swedish law that determined the halt of the development of wind cooperatives with a new tax introduced in 2009 that slowed down the development of Swedish wind cooperatives.

The future of Sweden in CE is uncertain due to the insecurity concerning regulation, the structure of energy market and a strong involvement of municipalities. However, despite uncertainties, it is interesting to observe that CE in Sweden have developed in a bottom-up perspective, with ownership of these communities deriving from both public and private sectors with the need in the future to have increased engagement from citizens in CE projects. The engagement of citizens in CE in Sweden would be beneficial both in production and consumption.

An interesting and peculiar aspect in Sweden is, as noted by some Swedish authors that CE do not actually need to be ‘geographically’ restricted to a local place but can be regional and national. In Sweden, many CE have not restricted their membership to local citizens, but they invite people from all over Sweden to be part. Even if CE are not ‘local’ they can still contribute to increased engagement. For example, a wind turbine located in another region than the one where the shareholders live can actually be followed digitally on a website. The link between digitalization, CE and participation of the civil society in that sense, could be an interesting aspect of the Swedish case that could be incorporated in future legal frameworks for CE and Japan.

VII Community Energy between EU-Japanese and Swedish-Japanese Climate and Energy Cooperation

Japan and the EU established cooperation in the field of climate and energy when the signature of the Economic Partnership Agreement (EPA) and the Strategic Partnership Agreement (SPA) entered into force in 2019 with the scope to broaden their security cooperation.⁸³ The cooperation was reinforced at the EU – Japan Summit on the 27 of May 2021, one that issued an important statement reiterating cooperation in a series of fields, amongst which climate and energy, with the view to both defeating the Covid-pandemic and supporting a resilient and sustainable recovery.

In particular, within this framework of cooperation, EU-Japan launched the Japan-EU Green Alliance in order to deepen the cooperation in energy transition, environmental protection, regulatory and business cooperation research, finance and sustainable transition.⁸⁴ CE can be contextualized within this broader energy and

climate cooperation frame that aims at making societies more resilient, being inclusive of civil society, with smart cities – all with the aim to implement the goals and ambitions of the Paris Agreement.

In addition to the EU-Japanese sustainable socio – and economic recovery programme, attributing a strong role to the civil society with a focus on the new type of CE emerging from both continents, a bilateral dialogue between Japan and Sweden has its relevance. Reference is made here to the new bilateral dialogue between Japan and Sweden in the Indo-Pacific and the commencement of the discussions in the EU, and its intention to cooperate with Sweden toward the realization of a ‘Free and Open Indo-Pacific’, as the Swedish Prime Minister Löfven concurred.⁸⁵

Macro-economic cooperation and coordination and support of a robust renewable energy system backed up by solid legal frameworks that support CE will be essential for a Japanese and Swedish sustainable socio-economic recovery framework. It will be beneficial for European climate and energy diplomacy as well. At the heart of the EU-Japanese agenda for economic growth and digital transformation, the way CE are regulated will be fundamental to increase productivity, create decent and quality jobs, make cuts in GHGs emissions, improve resilience, and protect people, citizens, communities by aiming for a net zero by 2050.

VIII Conclusions: Lessons Learnt from Juxtaposing the Different Community Energy Regulatory Models

The multi-regulatory perspective shows how the regulatory framework combining climate law and energy law for CE at EU level can advance or regress by taking inspiration from sources of law and policy of the global and national level. At all levels a stronger involvement of citizens in the transition is greatly needed. It should be legally predisposed. Without any doubt, there is a need to encourage more cross-scale learning between the global, regional and national (local) action plans and national regulatory frameworks. In this way, the Japanese model can be inspired by the EU model and vice-versa. Both the Japanese model and the Swedish model incentivize a policy dialogue where lessons learned can be used to modify and fine-tune enabling legal frameworks to

⁸³ E. Kirchner & H. Dorussen, *New Horizons in the EU-Japan Security Cooperation*, *Asia Europe J.* 19–27 (2021).

⁸⁴ Joint Statement – EU-Japan Summit, 27 May 2021 *Japan-EU Summit 2021* Charles Michel, President of the European Council, Ursula von der Leyen, President of the European Commission, and Yoshihide Suga, Prime Minister of Japan, met via videoconference (27 May 2022) at 2.

⁸⁵ Ministry of Foreign Affairs of Japan, *Japan-Sweden Relations* (16 Mar. 2021).

EU, THE JAPANESE AND SWEDISH CASES

achieve more efficient local implementation and energy strategies.

Juxtaposing the EU, Japanese and Swedish models can help national governments to create a sound institutional legal framework and knowledge on CE. Swedish and Japanese frameworks can be defined as ‘hybrid’, where the national or regional level of governance works closely with local governments to stimulate a two-way learning. The Swedish model is characterized with a strong role given to local communities that compete with each other. The Japanese model shows a decentralized system with enabling legislation that recognizes and calls local governments to act.

The Swedish model could find inspiration from the Japanese model on how to stimulate a call for action to create legislation that incentivizes citizens to act proactively. More dialogue and collaboration between the EU, Japan and Sweden can help to create a new regulatory framework for CE based on multi-regulatory governance that strongly empowers citizens. Both the Swedish and Japanese models show features of both ‘national or top-down actions’ enabling frameworks and ‘locally led or bottom-up actions’. In this approach, national governments may provide enabling frameworks but give local governments a certain amount of discretion to tailor local initiatives.

Also, the private sector may be improved through initiatives found at higher levels of governance.

Increased cooperation and mutual inspiration between Japan and Sweden could easily be effective in that both possess high levels of technology and industrial competitiveness. Such cooperation would have significant influence in the international community. This could in turn open a path for a new platform to extend a new kind of diplomatic dialogue within the frame of EU-Japan cooperation based on the improvement of new regulatory solutions for new forms of climate change and regulatory patterns that empower citizens in their challenges to address their global, regional and national challenges with CE as a start.

Japan might become the Asian leader in strengthening the role of law in CE frameworks, with the potential to export a regulatory model for CE on a global scale, particularly when disaster resilience and reliance on hydrogen are added as core aspects. However, this would require more diplomatic dialogue between EU, Japan and Sweden, which in turn would reinforce the area of regional security and prepare the ground for a future security collaboration in what would be a ‘non-traditional’ security field, namely the climate change and energy security field.