

about its customers. Who they are, what they like and dislike when staying at a hotel. But most importantly, the management understands how to transform this customer experience into improving the service and the level of customer satisfaction [3].

In the success of the Hilton corporation network, we can see an example of the implementation of the hotel's business strategy in market conditions, and cooperation with pioneer hotels will contribute to the development of a quality service system and the activation of domestic and inbound tourism in Ukraine [4].

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## **ACHIEVING RENEWABLE ENERGY TARGETS: A COMPARATIVE ASSESSMENT OF THE EU AND UKRAINE'S POLICY FRAMEWORKS**

Recently, there has been increasing recognition of the urgent need to transition towards more sustainable and environmentally-friendly energy sources. The devastating impacts of climate change, such as extreme weather events, rising sea levels, and biodiversity loss, have underscored the importance of reducing greenhouse gas emissions and shifting towards cleaner energy sources. Governments and organisations worldwide have recognised the need to decarbonise their energy systems and promote renewable energy sources to achieve sustainable development goals.

As countries strive to achieve their renewable energy targets and reduce their carbon footprint, effective policy frameworks and support mechanisms for renew-

able energy have become paramount. These mechanisms aim to promote investment in renewable energy, create a conducive environment for renewable energy deployment, and ensure the stability and predictability of returns on investment. Renewable energy support mechanisms include feed-in tariffs, quota systems, tax incentives, auctions, and green certificates [4].

Comparing the renewable energy policy frameworks and support mechanisms of different countries can provide valuable insights into the factors that drive or hinder renewable energy deployment. This paper will compare the renewable energy policy frameworks and support mechanisms in the European Union (EU) and Ukraine. The EU is a leading global player in renewable energy deployment and has set ambitious targets for increasing the share of renewable energy in its energy mix [1]. On the other hand, Ukraine has made significant progress in promoting renewable energy in recent years to reduce its dependence on fossil fuels and increase energy security [2]. Through this comparative analysis, we aim to identify the strengths and weaknesses of the renewable energy policy frameworks and support mechanisms in both regions and provide insights to inform future policy decisions to accelerate renewable energy deployment.

Table 1 provides an overview of the similarities and differences in renewable energy support mechanisms between the EU and Ukraine. Both have set renewable energy targets and offer various support mechanisms for renewable energy. However, the EU has a more established framework for renewable energy support and a greater diversity of renewable energy technologies. Additionally, the level of investment in renewable energy is higher in the EU compared to Ukraine.

Table 1

### **Similarities and differences in the support mechanisms for renewable energy**

<b>Similarities</b>	<b>Differences</b>
<ul style="list-style-type: none"><li>– Both the EU and Ukraine have set targets for the share of renewable energy in their total energy mix. The EU aims to achieve 32% renewable energy by 2030, while Ukraine aims to have 25% of its energy consumption come from renewable sources by 2035.</li><li>– Both the EU and Ukraine offer other support mechanisms for renewable energy, such as tax incentives, subsidies, and public financing for projects.</li><li>– Both regions also promote energy efficiency measures to reduce energy consumption and emissions.</li></ul>	<ul style="list-style-type: none"><li>– The EU has a more established and comprehensive framework for renewable energy support, including directives and regulations to guide policy implementation. Ukraine's renewable energy policy is relatively new and is still evolving.</li><li>– The EU has a greater diversity of renewable energy technologies, including offshore wind, geothermal, and bioenergy. Ukraine's renewable energy sector is dominated mainly by solar PV, with wind energy being the second most used source.</li><li>– The EU has a higher level of investment in renewable energy than Ukraine, both in government funding and private investment.</li></ul>

Source: [1; 5].

EU and Ukraine offer similar feed-in tariffs for renewable energy from small-scale and large-scale producers (table 2). Ukraine's quota system requires energy suppliers to source some of their power from renewable sources.

At the same time, the EU has a similar quota system and allows suppliers to buy renewable energy certificates to meet the quota. Both regions offer tax incentives for renewable energy investments, with Ukraine offering a range of incentives such as reduced corporate income tax, VAT exemptions, and accelerated depreciation.

The EU uses competitive bidding and green certificates to support renewable energy. At the same time, Ukraine has introduced green tariffs and uses renewable energy auctions to allow producers to compete for long-term contracts to sell their power.

Table 2

**Comparison of renewable energy support mechanisms in the European Union (EU) and Ukraine**

<b>Renewable Energy Support Mechanisms</b>	<b>EU</b>	<b>Ukraine</b>
Feed-in tariffs	Fixed prices are paid to renewable energy generators for the electricity they produce	Like the EU, Ukraine offers fixed prices for renewable energy from small-scale and large-scale producers.
Quota systems	Require electricity suppliers to source a certain percentage of their energy from renewable sources. Suppliers can buy renewable energy certificates to meet the quota if they don't generate enough.	Ukraine's quota system requires energy suppliers to source a certain percentage of their energy from renewable sources.
<b>Renewable Energy Support Mechanisms</b>	<b>EU</b>	<b>Ukraine</b>
Tax incentives	Reduce the tax burden on renewable energy investments or offer tax credits for renewable energy production. Includes reduced VAT rates, reduced excise duties, tax credits or exemptions	Offers a range of tax incentives for renewable energy investments, including reduced corporate income tax, VAT exemptions, and accelerated depreciation

Table 2

<b>Renewable Energy Support Mechanisms</b>	<b>EU</b>	<b>Ukraine</b>
Competitive bidding	Offers renewable energy contracts through a competitive bidding process, with the lowest bidder being awarded the contract	–
Green certificates	Tradable certificates that represent a certain amount of renewable energy production. They can be sold to energy suppliers to help them meet their quota obligations.	–
Green tariffs	–	Special tariffs are paid for renewable energy produced by small-scale producers.
Auctions	–	Introducing renewable energy auctions, which allow producers to compete for long-term contracts to sell their energy

Source: [1; 2; 5].

The feed-in tariff (FIT) is a renewable energy support mechanism offering a fixed rate for renewable energy generated by small and large-scale producers. Table 3 shows and compares FITs for renewable energy in the EU and Ukraine. The EU has a wide range of FIT rates depending on the country and technology used. In general, the EU's FIT rates for solar PV and wind energy are generally lower than in Ukraine. The range of FIT rates for solar PV in the EU is 6-25 euro cents per kWh, while Ukraine's rate is around 9.13 US cents per kWh. The range of FIT rates for onshore wind in the EU is 6.44-19.40 euro cents per kWh, while Ukraine's rate is around 7.15 US cents per kWh. The EU has higher FIT rates for offshore wind than other types of renewable energy, 19.40 euro cents per kWh. This reflects the higher cost of building and operating offshore wind farms [6].

Ukraine's FIT system has undergone significant changes in recent years due to the rapid growth in solar PV installations. The FIT rates for solar PV have been reduced from around 15 US cents per kWh in 2019 to around 9.13 US cents per kWh in 2020. This has led to a decline in solar PV investment in Ukraine [6].

The quota systems of the EU and Ukraine are different in their design, implementation, and effectiveness. The EU has a Renewable Energy Directive

(RED), which sets binding targets for the share of renewable energy in the final energy consumption of each member state. Each member state has a National Renewable Energy Action Plan (NREAP) that outlines its trajectory for meeting its target, including specific sub-targets for different renewable energy technologies. Member states must report their progress towards meeting their targets to the European Commission.

Table 3

**Renewable Energy Feed-in Tariffs (FITs) in EU and Ukraine**

Type of Energy	EU the (Range in Euro cents per kWh)	Ukraine (US cents per kWh)
Solar PV	6-25	9.13
Onshore wind	6.44	7.15
Offshore wind	10.31-19.40	–
Biomass	7.32-14.53	9.09
Hydropower	6.76-19.59	7.49
Geothermal	6.79-24.32	–

Source: [3, 6].

Ukraine has set a target of having 25% of its energy consumption come from renewable sources by 2035. Ukraine does not have a national quota system but a feed-in tariff system that provides financial incentives for renewable energy producers.

In terms of effectiveness, the EU's quota system has been more successful at promoting a transition to renewable energy. The EU has achieved its target of having 32% renewable energy by 2030, with renewable energy accounting for 18.9% of final energy consumption in 2019, up from 8.5% in 2004.

Ukraine's target of having 25% of its energy consumption come from renewable sources by 2035 is ambitious. However, it still needs to be seen how effective its feed-in tariff system will be in achieving this goal. The recent reduction in FIT rates has led to uncertainty and a decline in investment in the sector, which could make it more challenging to meet the target.

In terms of design, the EU's quota system is more comprehensive and transparent, with clear targets and reporting requirements. The sub-targets for different types of renewable energy technologies in the NREAPs help to ensure a diversified portfolio of renewable energy sources. Ukraine's target is more general, and the need for a national quota system means there is less transparency in its progress towards meeting its target.

Tax incentives for renewable energy in the EU and Ukraine also differ in their design and implementation. The EU has a variety of tax incentives for renewable

energy, including reduced value-added tax (VAT) rates, reduced excise duties, and tax credits or exemptions. VAT rates on the supply and installation of renewable energy equipment vary among member states but are generally lower than the standard VAT rate. Member states may provide reduced excise duties on biofuels and other renewable energy sources. Some member states allow tax credits or exemptions for installing renewable energy systems.

Ukraine has a reduced rate of VAT for the supply and installation of renewable energy equipment. There is also a 10-year corporate income tax exemption for renewable energy producers and a reduced real estate tax rate for renewable energy facilities. In addition, there is a Green Tariff system, which provides feed-in tariffs for renewable energy projects based on the type and capacity of the installation.

In terms of effectiveness, the EU's tax incentives have successfully promoted the growth of renewable energy. However, the effectiveness of the tax incentives in Ukraine is limited by the country's overall tax system, which could be better developed than the EU. In addition, the recent reduction in the Green Tariff rates in Ukraine has led to a decline in investment in the sector, which could limit the effectiveness of the tax incentives.

In terms of design, the tax incentives in the EU are more varied and flexible, with different types of incentives available for different types of renewable energy technologies. The reduced VAT rates and excise duties help to reduce the costs of renewable energy systems, while tax credits and exemptions provide additional financial incentives. Ukraine's tax incentives focus on specific areas, such as the Green Tariff system and corporate income tax exemption, which could limit the system's flexibility.

Ukraine has a system of green certificates that provides additional incentives for renewable energy producers. The green certificate system was introduced in 2009 to promote investment in renewable energy projects and increase the share of renewable energy in the country's energy mix.

Under the green certificate system, renewable energy producers are awarded one green certificate for every megawatt-hour (MWh) of electricity they generate from renewable sources. These green certificates can be sold to electricity suppliers or other market participants, who can use them to demonstrate compliance with renewable energy targets or to meet obligations under the country's quota system.

The price of green certificates is determined by supply and demand on the market. The value of the certificates can vary depending on factors such as the type of renewable energy technology and the level of competition in the market.

The green certificate system provides an additional source of revenue for renewable energy producers, which can help to make renewable energy projects more economically viable. In addition, it gives an extra incentive for investment in renewable energy, which could help Ukraine to meet its target of having 25% of its energy consumption come from renewable sources by 2035 [2].

However, the effectiveness of the green certificate system in Ukraine has been limited by the recent reduction in the Green Tariff rates, which has led to a decline in investment in the sector. The decrease in the Green Tariff rates has also affected the price of green certificates, which has made them less valuable to renewable energy producers. As a result, the green certificate system in Ukraine may need to be re-evaluated and potentially adjusted to ensure that it continues to provide adequate incentives for renewable energy production.

For Ukraine to join the EU electricity market, it would need to align its renewable energy support mechanisms with the policies and regulations of the EU. To achieve this, Ukraine could diversify its portfolio of renewable energy technologies, revise its feed-in tariff system, implement energy efficiency measures, and harmonise regulations and standards with the EU. By implementing these steps, Ukraine could align its renewable energy support mechanisms with the EU and become eligible to join the EU electricity market, contributing to the EU's goals of reducing greenhouse gas emissions and promoting renewable energy.

Thus, the EU has a more developed and diverse set of renewable energy support mechanisms emphasising market-based mechanisms such as quota systems and competitive bidding. Ukraine, on the other hand, has relied more on feed-in tariffs and tax incentives. The EU and Ukraine have quota systems in place, although the EU's is more advanced and covers more renewable sources. Ukraine has also been slower to introduce auctions, but this is changing.

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