Auctions for the support of renewable energy: international case studies

WP5 Executive Summary

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Many more EU Member States (MS) have introduced auctions since the last AURES assessment in 2016 (Figure 1). Amongst other factors, this process is driven by the EU State Aid Guidelines (2017) obliging Member States (MSs) to allocate support through a competitive process for new installations generating electricity from renewable energy sources (RES), and the Energy Community Contracting Parties have also started to introduce auctions to align their support schemes.

The WP2 of AURES II Project assessed 14 ongoing RES auctions (11 European countries DK, DE, EL, HU, NL, PL, PT, ES, UK, IT, HR and 4 outside: AR, CA, CL, MX), 2 auctions under planning (SK, UA) and two technology focused case studies (offshore wind development in Denmark and concentrated solar plant (CSP) auctions in various countries). Information was gathered through desktop research and expert interviews from industry, responsible Ministries and regulatory authorities. The case studies can be consulted on the AURES II website: http://aures2project.eu/case-studies/.

The studies showed that auctions are efficient instruments to follow the cost reductions of RES technologies compared to administrative procedures (e.g. Feed-in Tariff schemes). The examples of many countries (e.g. Denmark, Hungary, UK) show significant cost reductions after switching from the former, administrative support schemes. The flexible nature of

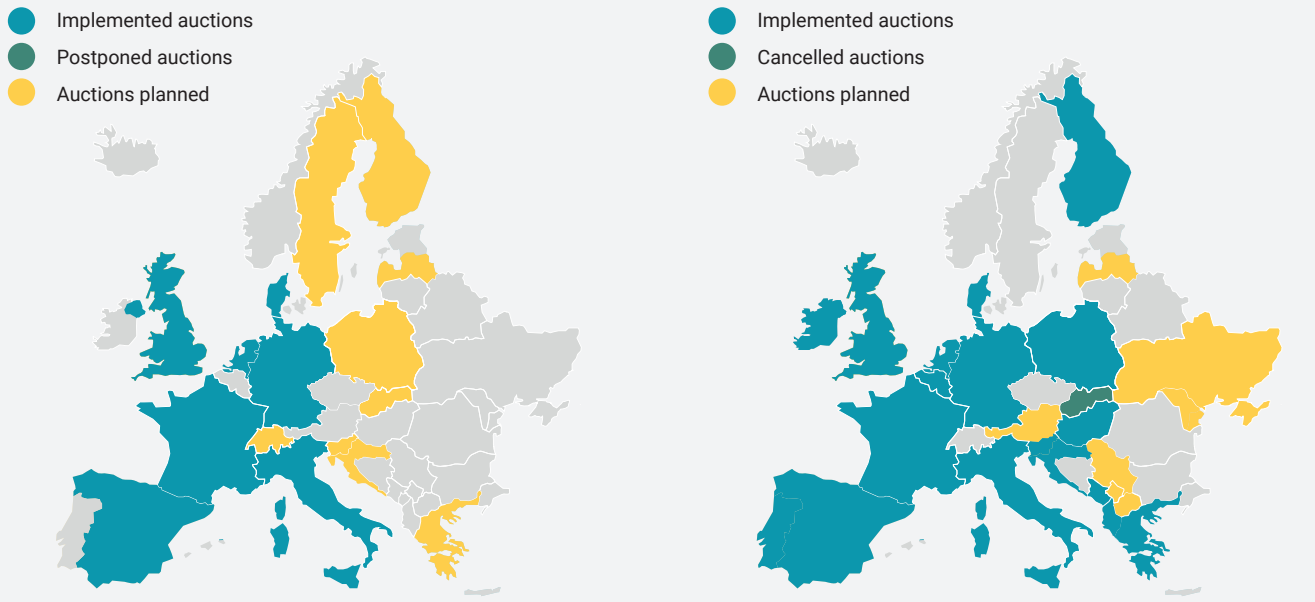

Figure 1: Auctions implemented till 2016 (Aures I synthesis report) and till first quarter of 2020

the design process also allows policy makers to adapt auctions to country specific circumstances.

We can observe convergence of many design elements in European countries already applying RES auctions. In the growing number of RES auctions we can observe heterogeneity in some auction design elements, but at the same time we can also detect some harmonization of other elements due to the observable learning effects taking place in the last years.

Among European auction schemes there are several common design elements as well as a mixture of variations, however, similar to the conclusions of the first AURES project, no single 'best' design solution can be concluded. The differences are more accentuated in non-European countries where the deviations of the auction designs are even greater. Based on the findings of the AURES II case studies, mostly pay-as-bid, static, multi-unit auctions are implemented, providing support for 15-20 years on average, with price being the main determining factor of winner selection. Another common feature worth highlighting is the application of a one or two stage bid bond to achieve higher realization rates.

On the other hand, there is a clear divergence in several important elements of renewable tender design. First, the technology focus of the auctions varies greatly. Some older tender schemes, for example in Germany, still operate technology-specific auctions, but this setup also applies in other countries like Portugal. New auctions tend to be multi-technology auctions, where different technologies compete against each other. It is important to note that multi-technology auctions can be organized without any technology restrictions or by creating several technology baskets. In some non-EU countries, conventional technologies participated in the auctions along with renewable technologies, e.g. in Mexico and Chile.

In terms of support payments there are also differences both in the EU and non-EU countries. In general, the two-sided sliding feed- in premium schemes (CfD) are most common. Some countries, like Germany, apply one-sided sliding premium systems, while others, like Denmark, introduced a fixed premium. Material and financial guarantees are widely used. Lower levels of financial guarantees are usually associated with more demanding material prequalification criteria and vice versa, albeit some countries (like Germany, Greece and Argentina) set relatively strict material and financial prequalification requirements.

Regarding the effectiveness and efficiency of the applied schemes, the desired decline in prices is observable in most countries, however due to the many exceptions and very different auction designs, only more sophisticated, in-depth analyses can provide sound conclusions. In terms of effectiveness, most auctions were oversubscribed, except for some cases, in which lack of competition resulted in higher prices than expected. This happened for example in case of the onshore wind tenders in Germany mainly due to the limited accessibility of production sites and opposition of local residents, in first auction in Croatia for small scale projects probably because developers have not yet gained enough experience, and the recent auctions in Italy, resulting from regulatory and administrative bottlenecks as well as auction design problems.

At this stage, it is difficult to draw conclusions about the realization rates because data from past auctions is limited. This is a clear caveat that has to be reconciled to draw proper conclusions as to the effectiveness of future renewable auctions.

The case studies also provided some new insights. In some countries low auction prices can partially be explained by the accumulation of numerous projects 'in the pipeline'. This can either be the result of long waiting periods without opportunity for developers to access support, like in Portugal, or the upcoming introduction of restrictive measures limiting the chances for specific technologies to participate in the auctions, like in case of onshore wind projects in Poland. Falling technology prices and advanced development stage in some countries can create bottlenecks to further RES deployment. As mentioned above, onshore wind sites have become scarce in Germany. The limited number of electricity injection points in Portugal are allocated through RES auctions. The Spanish auction scheme adjusts the award price level by a factor taking into account the dispatchability and production profile of RES installations. With the expectation that securing network connection points and integrating new RES plants prove to be increasingly challenging in many regions, countries may follow suit.

Recently, some new, innovative directions in auction design emerged in the EU. In addition to renewable electricity development, the auctioning of carbon mitigation solutions in the Netherlands (SDE++) provides opportunity to renewable heat, renewable gas, as well as carbon capture and storage (CCS) projects. Innovation auctions in Germany invite projects combining weather-dependent renewable sources with facilities providing flexibility services (e.g., biomass plant or storage).

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