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COMMUNICATION FROM THE COMMISSION

Delivering the internal electricity market and making the most of public intervention

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I. INTRODUCTION

An internal electricity market for Europe is not an end in itself. It is urgently needed to achieve the objectives of the Union policy on energy[1]. Those include: secure and competitively priced supplies; renewables and climate change targets of 2020 and beyond; and a significant increase in energy efficiency across the whole economy. That market should be based on fair and open competition. To achieve those public policy objectives, it is widely accepted that there is a need for some public intervention in electricity markets.

Member States have agreed to complete the internal electricity market by 2014[2]. To ensure that the market is completed and works effectively, and to ensure that citizens benefit from the opening of electricity markets across the Union, it is important to define the role, level and nature of public intervention, in line with the principle of subsidiarity, at Union, regional, national or local level. Where public intervention is defined at regional, national or local level, the Commission invites the competent authorities to ensure consistent approaches across the whole Union.

Public intervention at regional, national or local level can take different forms. Examples include state aid to certain sectors or companies in the form of grants or exemptions from taxes and charges, the imposition of public service obligations, and regulation through general measures. Public intervention can be useful and effective to attain policy objectives set at Union, regional, national or local level, but it must be well designed and should be adapted to changes in market functioning, technology and society that occur over time.

In the Communication "Making the internal energy market work"[3], the Commission stressed that if public intervention is not well designed, without proper co-ordination at EU level, it risks being counterproductive and distort the functioning of the internal market. In that Communication the Commission proposed an Action Plan for Europe to ensure the success of the internal market. That Action Plan announced a number of measures which aim to ensure appropriate public interventions. Those include for the year 2013 the adoption of guidance on support schemes for energy produced from renewable energy sources[4] and the development of criteria for assessing and ensuring

[1] Set out in Article 194 of the Treaty on the Functioning of the European Union
[2] See conclusions of the European Council of 4 February 2011
[3] COM(2012)663
[4] Hereinafter: renewables

consistency with the internal electricity market of national initiatives related to new generation capacities. The latter has also been requested by the European Council[5].

In the Communication "Renewable Energy: a major player in the European energy market"[6], the Commission underlined the need to adjust public intervention in order to stimulate innovation, increasingly expose renewables to market prices, prevent overcompensation, diminish the costs of support and ultimately end support. That Communication also repeated the announcement of guidance on support schemes for renewables.

In the meantime, some Member States have announced significant public support for investments in new generation capacity. If not properly designed, that support risks creating distortions of competition and investment signals.

The Union needs to look further ahead, and decide about the way to achieve the long term objective of almost carbon free electricity, presented in the Energy and Climate Roadmaps for 2050[7]. The Green Paper on a 2030 framework for energy and climate policies[8] points out that moving towards a more sustainable, secure and competitive energy system for the longer term requires a review of public intervention.

The case for reviewing public intervention in the electricity market in particular is strong as it has a significant influence on the costs and prices of electricity. In 2050, the total costs of electricity supply are predicted to vary from EUR 100 to EUR 200 per MWh, depending on policy scenarios[9]. Member States have been supporting fossil fuel-based generation as well as nuclear energy and renewables for some time. It is however difficult to establish the costs of each of these technologies on a comparable basis and to assess the necessary level of public support to them. The assessment of costs must reflect the capital, operating and maintenance costs of the power plants concerned as well as waste management and disposal, network and balancing costs and all related external costs such as emissions. For renewables, the initial capital expenditure is high and there are significant balancing and network costs. On the other hand their low production costs reduce the wholesale electricity prices and production of renewable electricity is emissions free. For nuclear the costs include, alongside heavy initial capital expenditure, the costs of decommissioning, waste disposal, and significant coverage of liability in the event of accidents. However as with renewables, nuclear operating costs are relatively low. Fossil fuel generation involves investment costs, important import fuel costs as well as the costs of CO2 allowances. To subsidise the costs related to the various technologies, Member States use a number of different tools and instruments, including tax breaks, fees and levies added to consumer bills and direct subsidies. Some of these forms of support fall under the EU law definition of state aid whereas others do not. The OECD[10] and

[5] European Council Conclusions of 22 May 2013
[6] COM(2012)271
[7] COM(2011)885 final and COM(2011)112 final.
[8] COM(2013)169
[9] KEMA study for levelised cost of electricity over the five scenarios selected http://www.roadmap2050.eu
[10] See for example: http://www.oecd.org/site/tadffss/; the analysis covers direct budgetary transfers and

IEA[11] have approached the complexity of this topic and developed methodologies to calculate the amount of subsidy for fossil fuels and renewables. In the Commission's view, these studies are unfortunately not comparable and fully applicable to the situation of electricity production in the EU. As a result they cannot be regarded in themselves as a sufficiently solid basis for policy formulation. The Commission therefore intends to deepen its own analysis of comparative costs in this respect. In this context the Commission will integrate its own preliminary analysis of comparative costs based on currently available information in the upcoming report on drivers for energy prices, followed-up by an in-depth study on full costs and subsidies of the various technologies in the electricity sector by June next year.

Today, retail electricity prices in the Union are often higher than elsewhere in the world. The end-user prices for electricity paid by companies and households have increased over the last decade in real terms.[12] Reasons for this are high and increasing taxes and levies on the final electricity price, costs of networks and fuels. However, limited competition and sometimes ineffective public intervention also play an important role. This is particularly the case when public interventions are planned and implemented without using the opportunities offered by the internal electricity market, when they disregard other policy objectives, and when they neglect potential solutions on the demand side (companies and consumers).

Creating the internal electricity market requires a strong regulatory framework at Union level. However, it also requires adaptation at regional, national and local level. The competent authorities are invited to take into account the mutual interdependence that comes with being part of the internal electricity market when designing public intervention. Through this Communication and the accompanying Staff Working Documents, the Commission proposes guidance how those authorities can design new and adapt existing public intervention to ensure that the internal electricity market works smoothly for the benefit of all.

This Communication assesses the main features of public interventions to correct market failures. It shows how they can be designed or respectively adapted in order to increase their effectiveness. The Communication presents the principles and direction of changes for discussion, in which in the Commission's view, the design of public interventions should further develop. Although the focus of the Communication is on public interventions in electricity sector the principles established may be applied as well in other energy sectors e.g. in transport and heating.

The Commission will adopt in 2014 new Union Guidelines on environmental and energy aid for 2014-2020 (hereinafter: EEAG). The Commission services will soon launch a public consultation on a draft text for those Guidelines. When adopting the

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tax expenditures that provide a benefit or preference for fossil-fuel production or consumption. Beyond this, externalities of conventional fuels in terms of their social and health costs have been estimated at an annual EUR40bn for the EU health systems.

[11] International Energy Agency 2012 World Energy Outlook http://www.worldenergyoutlook.org/.

[12] IEA's index for industry's real end-prices for energy in EU OECD http://www.oecd-ilibrary.org/energy/data/iea-energy-prices-and-taxes-statistics_eneprice-data-en

EEAG in 2014, the Commission will take due account of the outcome of the public debate launched by this Communication and the draft EEAG. The Commission will also take up the results of that debate when proposing changes to the existing *acquis* of Union law for the internal electricity market.

II. WHY RE-THINKING PUBLIC INTERVENTION IN ENERGY IS NECESSARY?

The creation of the internal electricity market has changed the role of public intervention, but it has not removed the need for public intervention to secure a level playing field, overcome market failures, foster technology and innovation deployment and, more generally support, the market in delivering appropriate investment signals. As the internal electricity market develops, a number of issues have arisen which may justify public intervention.

Renewables are an important and growing player in the market

As the Commission highlighted last year[13], renewables have a significant market share in the internal electricity market, with 13% of Union final electricity consumption in 2011[14]. The Energy Roadmap 2050 foresees that the share of renewables will increase in the longer term.

The benefits of a larger share of renewables are manifold[15]. However, most support schemes applicable today were designed when renewables technologies were in their infancy and with negligible market shares. As the internal electricity market in particular evolves, as renewable energy technologies mature and as their penetration rates increase, support schemes should be adapted to those changed circumstances, in order to foster the next generations of renewables with improved performance and to contain the costs of these schemes to energy consumers.

Response on the demand side

The potential of the demand side in markets is currently underutilised. Consumers have traditionally been considered passive users, rather than an influential part of the energy market. Changes in the supply side, particularly increases in "variable" wind or photovoltaic power generation, require more flexibility in energy networks. Changes to consumption patterns, coming from energy efficiency, local energy sources, and demand response solutions can provide such flexibility and will be crucial for effectively matching supply with demand in the future.

Developments in technology create new opportunities for *demand-side response* (such as smart distribution networks, smart meters and appliances and electricity storages)

[13] COM (2012)271
[14] COM (2013)0175
[15] Their contribution to the objective of sustainability includes not only greenhouse gas emission reductions but may also comprise reductions in air pollutant emissions or reductions in cooling water needs compared to conventional alternatives. In addition, they contribute to the objective of diversified supply and greater resource efficiency.

and demand-response services (dynamic pricing, interruptible load- or dynamic-load capping contracts for industry, commercial businesses and households, participation in balancing markets, services aggregating and optimising demand for households). These increase system flexibility and reduce the need for generation capacity. They can reward consumers by enabling them to shift part of consumption to cheaper periods. The potential of the demand side response at the Union scale is enormous: peak demand could be reduced by 60 GW, approximately 10 % of EU's peak demand[16]. In addition to demand-response, increased end-use energy efficiency reduces costs and reduces the need for investment in expensive generation facilities.

Challenges of the climate change agenda

A key rationale for public intervention in electricity markets remains the internalisation of environmental externalities. With regards to electricity, the EU Emission Trading System, which translates the climate change targets of 2020 into secondary legislation, is an important step into this direction. Some Member States argue that in addition to support schemes for renewables, public intervention is also needed in the form of State aid for investment in nuclear generation, another low carbon electricity source.

At the same time the G20[17] and the European Council[18] have renewed their calls to phase out subsidies to fossil fuels by 2020. The phase-out of environmentally harmful subsidies, including direct and indirect subsidies to fossil fuel generation, is one of the on-going actions of the Action Plan to ensure the success of the internal energy market[19].

Need for generation adequacy

Increased electricity production from variable sources in the EU, the need to finance the upgrading of today's aging electricity generation system, and volatility on primary energy markets create volatility and uncertainties for generators with regard to their expected revenues. They should be able to manage the uncertainties in an effectively functioning electricity market. When investors expect to be able to recover their outlays based on (expected) future electricity prices and demand, they will construct generation capacity to meet demand for electricity at all times.

Regulated retail prices and wholesale price caps mean that new investments are less likely to be profitable. In addition, the economic and financial crisis has increased uncertainties over future demand and has weakened the financial position of many companies. That situation is aggravated by the fact that demand- response services are not yet widely available. As a result, concerns about the adequacy of generation capacity have led some Member States to consider new public intervention, such as support schemes for investments in new electricity generation capacity or for

[16] See Staff Working Document on Demand Response.
[17] G20 Leaders Statement, Pittsburgh Summit (Sept 2009), Toronto Summit (June 2010) and G20 Research Group: 2011 Cannes G20 Final Compliance Report,
[18] European Council Conclusions of 22 May 2013
[19] COM(2012)663

remunerating existing plants to remain operational. The Commission considers that those measures should not result in inefficient plants being artificially kept in operation through public support, or in unnecessary new generation capacity being built.

Increasing integration of national markets

The creation of the internal electricity market has opened up national markets to energy suppliers from other Member States and made national markets more interdependent. On the one hand this development makes it possible to exploit the synergies and economies of scale of the internal electricity market. On the other hand, where markets are linked, public intervention affects prices not only nationally but also in neighbouring markets. The resulting distortions of the internal electricity market can be both short-term (affecting system stability, spot market prices and electricity production), and long-term (crowding out investments in new capacity or diverting them to sub-optimal projects).

III. MAKING PUBLIC INTERVENTION MORE EFFECTIVE AND EFFICIENT

Well-designed, targeted and proportionate public intervention allows the competent public authorities to achieve public policy objectives without distorting markets beyond what is necessary. If a problem is temporary, the public intervention should also be temporary. Interventions should be consistent across different policy goals. This means that in a strongly interlinked and dynamic internal electricity market, public intervention must be properly coordinated within Member States and between Member States to avoid higher costs for consumers and taxpayers, reduced opportunities for cross-border trade or subsidy races between Member States.

Identifying a specific problem and its cause

To justify public intervention, it is essential to identify the problem to be addressed and demonstrate that the internal electricity market functioning on the basis of the existing *acquis* of Union law is unlikely to solve it.

The need for public intervention to avoid negative spill-overs for society if electricity producers and consumers ignore the cost of environmental damage is well acknowledged. Public intervention can also create incentives for positive developments, for example supporting the development of new renewable energy technologies where there are barriers to innovation and uptake. Some investments may be facilitated by public intervention. Such intervention can improve coordination where long-term commitment of several market players at once with different allocation of costs and benefits is required. Developing demand-response measures, for instance, requires coordinated action by distribution companies, providers of demand-response services and suppliers of electricity and information and

communication technologies (ICT)[20]. It may also require public incentives and the removal of barriers in networks tariffs and regulations.

Once the case for public intervention has been made, the nature of the intervention needs to be assessed in the wider political and regulatory framework of the national electricity market, including other intervention.

Assessing potential interplay with other policy objectives

When designing public intervention, Member States should avoid addressing different public policy objectives in isolation from each other, in order to avoid a conflict between them. They should plan holistically taking into account all objectives of energy policy and need to coordinate the various instruments of public intervention, including opportunities offered by the internal electricity market.

Trade-offs may be complex, for example, using coal for security of supply reasons might contradict environmental goals, or boosting variable power might fuel security of supply concerns in power systems characterised by low levels of interconnection and/or flexibility. Intervention in support of domestic generation capacity may have the effect of deterring investments in new cross-border interconnectors that may represent a more efficient solution for ensuring security of supply.

Ensuring prices reflect external costs is a critical step towards ensuring effective and efficient public intervention. For example, removing fossil fuel generation subsidies is one remedy to correct distorted energy price signals.

Evaluating alternative options: European and demand side dimensions

The Union law *acquis* may offer a European alternative to national or local public intervention. The competent public authorities are invited to make full use of existing EU policies and programmes and opportunities offered by the proactive implementation of EU legislation.

Sometimes the solution to the situation in a national market might be found in a broader regional context, involving capacities or solutions available across the border thanks to the increasingly interconnected internal electricity market.

Instead of granting subsidies for new or maintaining inefficient and polluting old generation capacity, Member States could for instance promote long-term contracts for constructing new power plants between generators and future consumers (e.g. consortia of companies), provided those contracts are in line with the applicable rules of competition law. Such contracts may provide both generators and companies with the predictability they need to make investments[21]. For energy-intensive industries,

[20] For example, as a key functionality of smart grids, demand response measures will only fully deliver their potential if they are complemented by a fully rolled out high speed open information and communication technology infrastructure.

[21] Additional benefits include: for large industrial consumers longer term contracting hedges against peak prices, allows better planning and more efficient management of production.

long-term contracts can be an important element for ensuring their global competitiveness and can provide predictability to both buyers and sellers. Foreclosure of markets must, however, be avoided.

Furthermore, it seems useless to develop European supply without a corresponding approach to the demand side. Demand response and end-use of energy efficiency is a first alternative option before considering public intervention on the supply side. Putting demand-side response action on an equal footing with supply is the most promising tool for better matching supply and demand through market mechanisms while offering consumers the possibility to lower their electricity bills. Synergies with the ICT sector can provide cost-effective and efficient demand response management systems.

Encouraging changes in consumer behaviour and consumers' involvement does not need to mean public financial intervention. Implementing the right measures (such as improvements in the use of ICT, roll-out of smart meters and appliances, reform of network tariffs and removal of regulated prices) facilitates changes in behaviour. The transposition of those provisions of Union law into national law creates opportunities for consumers to lower their electricity bills and strengthens electricity price signals, it also reduces electricity demand at times of peak load and the corresponding need for new generation and transmission capacity, saving scarce investment funds and public resources while increasing the efficiency of the energy system. Last, but not least, it is also a cost-efficient way for the large-scale integration of renewables into the electricity system.

Minimising impacts of public intervention on electricity systems and competition, and ending hidden subsidies

Support for new generation technologies often takes the form of establishing special rules for the responsibility for grid balancing, priority dispatching and financial responsibility for network development[22]. Whilst these rules may support the desired growth of generation capacity locally, with the development of the open and competitive electricity markets, such rules may lose their justification once the internal electricity market is completed.

The Union is harmonising market rules including network access rules (network codes) for electricity suppliers putting competitors from different Member States on the same footing. In addition Member States need to ensure that national rules which are not harmonised are non-discriminatory across technologies and do not exempt any generators from the financial consequences of their actions for example being out of scheduled production. When Member States develop intraday, balancing and ancillary services markets all producers should be able to participate in those markets, deriving additional revenue to their day ahead operations, contributing to flexibility of the

[22] See for example rules on dispatch priority Article 16 of the Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L140/16 of 5.6.2009 5.6.2009, p. 16–62

system and matching of demand and supply, and in effect more efficient production with less need for subsidies.

The development and implementation of a solid legal framework for the use of nuclear energy, meeting the highest standards of safety, security and non-proliferation, is in the interest of all Member States. Public interventions have to take into account the polluter pays principle enshrined in the Treaty (TFEU) and the EU legal framework for treatment of decommissioning, waste and spent fuel management[23]. In the Commission's view further harmonisation of the rules on liabilities should aim to ensure that all actors in the internal electricity market are put on an equal footing.

Keeping costs low: auctions, competition across technologies and exploiting efficiencies at European Union level

In defining any public intervention, Member States should ensure that the intervention is appropriate to the objective pursued and does not go beyond what is necessary to achieve it (proportionality test). Fostering competition between technologies can help to ensure that support is limited to a minimum and leaves it to the market to select the most efficient technologies lowering the distortive effect of the support systems. Therefore, the Commission invites Member States to design support schemes across the different energy technologies capable of contributing to the objective pursued[24]. However, it may be relevant also to support the deployment of new and innovative but not yet competitive technologies that will allow progress along their learning curve to take place. For this purpose, technology specific support might be necessary.

In the case of support schemes, genuinely competitive bidding processes should become the default allocation mechanism to help further minimising the necessary level of support and avoid overcompensation by making the costs of energy transparent and avoid "one tariff fits all support". Schemes based on required volumes instead of guaranteed revenues for production may raise risk premia as they transfer the price risk to the producer, but may also be more effective to introduce competition between different technologies and make producers responsive to market signals.

The internal electricity market and the EU Emission trading system[25] are important tools to keep costs in check and therefore are key elements in the analysis of costs and benefits of national measures. Convergence of national support schemes methodologies across the EU contributes to optimised investment decisions. Competition can be strengthened if support schemes are opened to production from other Member States, building on increased connectivity and, where relevant, cooperation mechanisms.

[23] Council Directive 2011/70/Euratom of 19 July 2011, OJ L 199/48 of 2.8.2011

[24] This does not affect the rights of the Member States in defining their electricity mix.

[25] Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, OJ L 140/63 of 5.6.2009

The Commission specifically as regards renewables envisages exploring options for such "Europeanisation" of support schemes for the future EU legal framework on renewables. The Renewables Directive does not prohibit Member States from limiting their support schemes to nationally generated renewables production[26]. Already today Member States can use cross-border support within cooperation mechanisms[27] to introduce cross-border support. The Commission strongly encourages Member States to use these opportunities and progressively open up their nationally oriented support schemes to producers from other Member States.

Unilateral intervention conducted by a single Member State can harm companies in neighbouring Member States. Such an intervention may turn out to be more expensive and less effective than a measure undertaken jointly by several Member States. The net benefit of achieving generation adequacy in the internal electricity market would amount to EUR 7.5 billion per year in the period 2015-2030 [28]. Further, it is expected that EU-wide sharing of balancing reserves would amount to annual net benefits of up to EUR 0.5 billion. Additional material gains the order of EUR 4 billion could come from using smart grids to facilitate demand side response at the consumer level.

Gains of EUR 16 billion to 30 billion are available in the period 2015-2030 under the coordinated renewable investment scenario, making use of the internal electricity market by locating RES electricity generation where it is most effective from a supply and demand side perspective.

When considering public intervention, therefore, Member States need to look at achieving the desired policy objectives and consider if they can be met by use of not only the national potential but also the potential in other Member States.

Considering the impact on costs for consumers

Energy costs are a key factor for the competitiveness of energy-intensive industries and for the attractiveness of an industrial location in these sectors. World price differences translate into impacts on the cost structures of energy-intensive sectors and have a direct effect on global competition and competitiveness. So far the Commission addressed these concerns by issuing State aid guidelines allowing for compensation of CO2 costs included in the prices of electricity[29]. Strengthening the functioning of the internal energy market can therefore make a significant contribution to ensuring the overall competitiveness of the European economy.

Monitoring, evaluation and phasing out of support

[26] The compatibility of such limitation with the provisions of the Treaty on the Functioning of the European Union is currently under scrutiny of the European Court of Justice. See cases Essent Belgium C-204-208/12 and Ahlands Vindkraft, C-573/12.
[27] For instance Article 11 of Directive 2009/28/EC
[28] Study on the benefits of an integrated European energy market" 2013, Booz&Co: http://ec.europa.eu/energy/infrastructure/studies/doc/20130902_energy_integration_benefits.pdf
[29] Guidelines on certain State aid measures in the context of the greenhouse gas emission allowance trading scheme post 2012, OJ C158, 05.06.2012, p. 4

In order to minimise distortions to competition public interventions should be phased-out when the reasons that have justified them vanish or when circumstances change. This requires regular evaluation. At the same time, in order to achieve their objectives, public interventions need to represent stable, long-term, transparent, predictable, and credible commitments to investors and consumers. A need to make changes in regulatory conditions in response to developments in the market does not justify applying such changes retroactively to investments already made in situations where the need arises because of failures on the part of the public authorities to correctly predict or adapt to such developments in a timely manner. Applying retroactive changes in such situations will seriously undermine investor confidence and should, to the extent possible, be avoided.

IV. GUIDANCE ON SPECIFIC MEASURES

In this Communication, the Commission provides principles and policy considerations for specific forms of public intervention related to electricity generation. The technical aspects are further developed in the accompanying Staff Working Documents.

Public interventions in electricity markets may entail public service obligations imposed on generators, suppliers and/or transmission system operators. Such obligations have to meet the requirements set out in Article 3(2) of the Electricity Directive[30]. In particular, they have to be clearly defined, transparent, non-discriminatory, verifiable and guarantee equality of access for electricity undertakings. Member States must be able to show that public service obligations are necessary, proportionate and transitional in nature[31].

The Commission is committed to working with the competent public authorities with a view to addressing generation adequacy concerns, reforming support schemes for renewables and facilitating the deployment of demand response measures. However, where public intervention is not compliant with the Union law *acquis* for the internal electricity market or competition rules, in particular state aid rules, the Commission will launch infringement procedures and is obliged to start State aid proceedings.

Guidance for public intervention for the provision of generation adequacy

Electricity supply is essential for the functioning of the modern economy and society. Guaranteeing security of supply is therefore a key public policy objective. Even if it might be legitimate for generation adequacy standards to be different against the background of differing circumstances in Member States, the system reliability in interconnected markets is interdependent.

[30] Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal electricity market in electricity and repealing Directive 2003/54/EC, OJ L 211, 14.8.2009, p. 55–93

[31] See Judgement of the Court in Case C-265/08 Federutility and Others

The Commission considers that the prevention of supply disruption should not go beyond what is strictly necessary – the competent public authorities should first and foremost let the market forces work to carry out the appropriate investments. If there are doubts whether the market delivers generation adequacy and security, an objective, facts-based, and comprehensive assessment of the generation adequacy situation is advisable prior to public intervention. Competent authorities are invited to include an appropriate representation of the impact of Union internal electricity market *acquis* [32] and to be consistent with the European Network of Transmission System Operators for Electricity (ENTSO-E) Union wide generation adequacy assessment[33]. The assessment must take into account the potential of investment in transmission infrastructure, including interconnectors, and more demand-side involvement.

Generation adequacy assessments need to be notified to the Commission in accordance with the requirements of the Electricity Security of Supply Directive[34]. In order to strengthen and intensify the cooperation and coordination between Member States and the Commission in the field of assessment of generation adequacy the Commission established on 15 November 2012 the Electricity Coordination Group[35] as announced in the Action Plan for Europe. The rules contained in the Electricity Security of Supply Directive and its transposition and implementation may be insufficient to tackle the challenges of the future in a satisfactory way. The Commission may propose new legislation based on the exchanges with the Member States in the Electricity Coordination Group.

If generation inadequacy is identified as a serious problem following a comprehensive assessment, Member States are invited to assess the alternative measures which can equally target or minimise the generation adequacy problem. These are the promotion and enabling of demand response, including by an accelerated roll out of smart metering and expansion of interconnection capacity, in particular towards neighbouring countries with surplus electricity generation or a complementary energy mix.

The causes of generation inadequacy and reasons why it might not be remedied by the market alone must be properly identified and removed in line with European Union legal requirements[36], including regulatory failures such as wholesale and retail price regulation and negative impacts on investment decisions of existing generation support schemes for fossil and nuclear generation. For integrating renewable energy efficiently in the market, alongside public intervention, effective intraday, balancing and ancillary services markets are necessary. Their lack might be an important cause

[32] Such as the Energy Infrastructure Regulation 347/2013, the EU emission trading system and energy efficiency policies (e.g. the Energy Efficiency Directive 2012/27/EU).

[33] Including reliable data on the development of variable wind and solar, domestic and from neighbouring Member States

[34] Directive 2005/89/EC of the European Parliament and of the Council of 18 January 2006 concerning measures to safeguard security of electricity supply and infrastructure investment, OJ L 33, 4.2.2006.

[35] Commission Decision of 15.11.2012 setting up the Electricity Coordination Group, C(2012) 8141

[36] For example competition rules and decisions as well as provisions of the Electricity Directive 2009/72/EC.

of generation inadequacy stemming from the fall of profitability of mid-range and peaking plants.

If the alternative measures do not solve the identified problem of generation adequacy a strategic reserve, a credibly one-off tendering procedure or, if this will not work even a market-wide capacity mechanism are possible options. Whatever mechanism is chosen, Member States should take into account the objective of phasing out fossil fuel generation subsidies by 2020. The tendering for new capacity is most cost-effective if it is organised in an open, transparent manner open to all technologies and means of providing flexibility, including demand-side response operators and operators from other Member States to the greatest extent possible (for example up to the maximum import capacity). The tender criteria may include technical performance criteria and the implications for CO2 emissions to avoid the lock-in effect of new generation capacity[37].

The Commission is of the view that mechanisms to ensure generation adequacy should be open to all capacity which can effectively contribute to meeting the required generation adequacy standard, including from other Member States. This can be achieved in several ways discussed further in the Staff Working Document on generation adequacy. Member States considering public interventions to ensure generation adequacy are invited to cooperate with Member States in their region at an early stage, to examine the potential of implementing cross border mechanisms.

Further the Commission is of the view that in order to minimise distortions on the internal market there should be no export charges or procedures to reserve electricity for the domestic market, there should be also no bidding restrictions or export restrictions and adverse effects on the operation of market coupling should be avoided.

The competent public authorities can reduce distortions of competition and trade by ensuring the necessity for an intervention is regularly reviewed to address the underlying market failure and designing public interventions so that they are automatically withdrawn as soon as the capacity problem identified recedes (for example by expansion of interconnector capacity or demand response deployment, or through energy efficiency measures).

Where the Commission is called upon to examine the appropriateness of public interventions to ensure generation adequacy, either under state aid rules or under internal electricity market legislation, it will require from the Member State a thorough generation adequacy assessment as described in the preceding paragraphs. Far-reaching public interventions to address generation adequacy can be expensive. Member States can reduce their impact on consumers by combining them with

[37] For example, depending on the mechanism, by ensuring that shadow carbon prices in line with the EU's climate objectives, as for example illustrated in the 2050 Energy Roadmap decarbonisation pathways, are included in relevant cost and revenue calculations and/or by specifying maximum average carbon footprint levels consistent with this pathway.

measures to promote demand response, and building the market and transmission infrastructure which a low carbon electricity system requires.

Such interventions should not compensate for the negative impact of other subsidies or poor implementation of internal market rules. This means that the Commission would expect to see not just a high commitment to transitioning to a low carbon electricity system in countries proposing public intervention to ensure generation adequacy, but also RES support schemes which conform to best practice as developed below. Likewise Member States should remove price regulation and barriers to the participation of demand response on wholesale and retail electricity markets and in the provision of balancing, ancillary and other system services. To promote demand response deployment, Member States should accelerate the roll out of Smart Grids and smart metering, which will go in parallel to the Commission's work to create better conditions for smart appliances and energy management systems to develop.

Guidance for support schemes for renewables

Pursuant to Article 194 of the Treaty, the Union policy on energy shall aim to promote the development of new and renewable forms of energy. Such promotion is also important for achieving the Union's environmental and climate objectives. Energy markets are unlikely to deliver the socially and macro-economically desirable levels of renewables, in the near future. To achieve such desirable levels of renewable energy, governments may want to intervene to support "infant industry" and in order to overcome specific market failures public intervention can be considered as necessary.

The Commission has called for public intervention to create stable conditions for renewables investment and to encourage the integration of RES electricity in particular into the internal electricity market. Retroactive changes to existing support schemes will damage investor confidence and reduce investments in the sector. Support scheme reforms should not frustrate investor's legitimate expectations. The Commission recommends supporting renewables in a stable, transparent, credible, cost -efficient and market integrating way. This will lead to technological innovation and competitiveness of renewable sources.

As the renewables sector and technologies mature and grow and as costs decline, it is important that production and investment decisions are driven increasingly by the market and not by guaranteed price levels determined by public authorities. Any support that is still necessary should therefore supplement market prices, not replace them, and be limited to the minimum needed. In practice, this means phasing out feed in tariffs which shield renewable energy producers from market price signals and move towards feed in premiums and other support instruments, such as quota obligations, which force producers to respond to market prices. It also means designing the support in a way more consistent with the ETS, to ensure reduced support when ETS carbon prices increase, as would be the case with floating feed-in premiums. Whilst such economic instruments can be equivalent in economic efficiency in theory, their dynamic impact on the functioning of the market renders premium schemes and quotas more appropriate instruments for the market integration of renewable energy. Moreover, Member States are invited to grant such support

through genuinely competitive allocation mechanisms such as tendering procedures. Such procedures make it possible to reveal the costs of the different technologies, operators and projects taking into account specific production locations and to stimulate a healthy competition not only between different operators and locations but also between different renewable energy sources.

Renewables require the use of technological equipment produced in and outside of the EU and sometimes they require use of biomass as feedstock. The Commission reminds Member States that "local content rules" or similar territorial constraints on the use of particular technologies, equipment or feedstock for production of electricity might not be in line with the EU acquis.

Focusing the public intervention on research and development for emerging technologies is also crucial. Support to such technologies and innovation will allow fostering their market entry and the early deployment of next generations of technologies.

Small, currently non-commercial, decentralised production such as from individual households may need to be supported in specific ways. If such need is established, such an approach could allow to deliver socially and economical-optimal levels of renewable energy and to support a wide portfolio of renewable energy technologies.

In addition to public intervention to promote RES electricity, balancing obligations, the design of balancing markets, the use of interconnections, grid connection charges and grid use rules can be designed in a technology-neutral manner and allow appropriate cost signals to be passed to all major producers and users. The Commission also invites Member States to apply cost minimising methods (such as competitive tendering for support).

Cooperating at Union level in development of renewables

Directive 2009/28/EC provides for three kinds of cooperation mechanisms between Member States. This helps Member States to achieve national targets most effectively, using the different national resources of Member States within existing electricity rules and physical infrastructure. Given the potential of cooperation mechanisms to further Europeanise renewables support, the Commission regrets that, with the exception of the joint support scheme between Norway and Sweden no use has been made of these cooperation mechanisms so far. Developing renewables in cross border support schemes, can reduce the costs of compliance with Directive 2009/28/EC. It can also help remove possible distortions to the single market arising from different *national* approaches.

In the accompanying Staff Working Document on cooperation mechanisms, the Commission provides more detailed guidance on the use of cooperation mechanisms in the renewable energy support schemes, including optional design features with annexes of templates of "standardised" agreements for any of the cooperation mechanisms.

Demand Response Measures

The internal electricity market is not just the sum of electricity producers and suppliers, technology companies and network operators. Consumers – industrial, commercial and service users of electricity and the half a billion household consumers – form a very important part of the market, namely the demand side. They can play a significant role in making the electricity system more flexible, through energy efficiency solutions, local renewable generation and demand-response services. That requires supporting technologies accessible to all consumers including exploiting synergies between energy and telecom operators.

This requires that the retail market is organised in a way that consumers will benefit from and are stimulated to participate in the energy market, and that triggers investments in innovative products and services to optimise the participation of consumers. It should allow consumers to participate actively in the electricity market and be billed based on wholesale market price signals. It also requires clear rules on data exchange and protocols

Enabling demand response requires removing tariff elements that hamper active market participation as well as the development of dynamic pricing. If properly implemented, the demand response framework provided in the Electricity Directive and in the Energy Efficiency Directive[38] will enable and promote technologies which allow the aggregation of the energy consumption of many individual consumers' on a voluntary basis. This can open up the market to exploit the potential of demand response, putting demand on an equal footing with supply in the market. The Commission will assist the Member States with the timely transposition (by June 2014) and adequate implementation of the Energy Efficiency Directive.

The Commission is currently analysing the Cost Benefit Analyses and smart metering roll-out plans received from the Member States. The Commission in consultation with the Member States will present the results of this exercise in a comprehensive Benchmarking Report by the end of 2013.

Further policy and regulatory work may be necessary at the Member States and the EU level. Appropriate tariff design and making sure that dynamic intraday tariffs are available to end-user customers should facilitate billing consumers based on wholesale prices and not on consumption profiles. It is recommended to remove price controls, strengthen the price signals and develop further rules for coordination and interaction of different actors in the market, including in particular the role of distribution companies in local balancing as part of smart distribution networks. In this context, the access and exchange of data must remain safe and limited to the necessary but open for new market players with the specific consent of individual consumers. There is also a need to identify and promote good practices for demand response across Member States.

[38] Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, OJ L315 p.1

In parallel, it is essential to bring the enabling technology into the market through the roll-out of smart metering systems with the appropriate functionalities and together with the creation of the necessary framework for the broad introduction of smart and efficient appliances and control systems under Ecodesign, Energy Labelling and standardisation. Such smart technologies and solutions should be deployed urgently whilst respecting legal considerations on data security and protection, consumer privacy, and the protection from harmful intrusion. European standardization organizations will develop a complete set of standards for smart grids, including for demand response, by the end of 2014. The ongoing actions needed to promote and enable demand response are discussed further in the Staff Working Document on incorporating demand side flexibility in electricity market.

V. CONCLUSIONS AND WAY FORWARD

The internal electricity market is an important tool to ensure an affordable, secure and sustainable electricity supply in the future. To preserve its role, it is necessary to ensure that public interventions do not undermine the process of its completion and make it work smoothly. Making use of opportunities offered by the Union law *acquis* on the internal electricity market, and Union programmes may in some cases remove the need for public intervention at the regional, national or local level. Where a competent authority decides to intervene, the Commission invites it, , to take account not just of the regional, national or local interest, but also the impact of those measures on the internal electricity market. This will be to the benefit of the citizens.

This Communication elaborates further on other previous Commission initiatives to ensure consistency in the internal electricity market. The Commission is also in the process of the revision of guidelines on state aid for environmental protection as part of the State aid modernisation process. As part of the revision process, topics such as support for renewables and capacity mechanisms are also being reflected upon[39]. The Commission welcomes the opportunity to discuss with Member States how the principles set out in this Communication can be applied in practice so that the benefits of an integrated and competitive internal market can be fully realised. The Commission will also continue to work with Member States and national regulatory authorities, in particular through the Electricity Coordination Group, on addressing the challenges to ensuring security of electricity supply and generation adequacy.

Some public interventions, for example to internalise negative externalities, remain crucial to enable a good working of the internal electricity market. Other interventions deal with more temporary problems, for example to ensure generation adequacy in circumstances in which the market does not (yet) deliver. For such public interventions, more prudence and caution is needed, and they should be strictly limited in time. Public intervention to promote generation adequacy may constitute state aid and would accordingly fall under the scope of the revised state aid guidelines for environment and energy. It may entail public service obligations imposed on generators, suppliers and/or transmission system operators. Such obligations have to

[39] http://ec.europa.eu/competition/state_aid/modernisation/index_en.html

be notified to the Commission and have to meet the requirements set out in the Electricity Directive and be clearly defined, transparent, non-discriminatory, verifiable and guarantee equality of access for electricity undertakings. The Commission intends to follow the criteria elaborated in this Communication in assessing the public service obligations in the electricity sector.

The importance of ensuring a fully functioning internal electricity market will increase as the transition of the energy system continues. Issues raised in this communication are also relevant for the Commission's work on a future framework for climate and energy policies for 2030.

The level, timing and nature of public intervention and how to reconcile such intervention with the internal electricity market and the EU acquis are questions which are becoming urgent, particularly in view of the completion of the internal electricity market in 2014. This Communication and the accompanying Staff Working Documents provide considerations on several pressing questions, including demand response, capacity mechanisms, renewable electricity support schemes and cooperation mechanisms. Implementing these principles would improve the functioning of the internal electricity market and help the Union to meet the objectives of the Union policy on energy, which are sustainability, energy security and competitiveness. The Commission, for its part, will soon launch a consultation on the Energy and Environmental aid guidelines which will provide a framework for assessing the compatibility of measures involving State Aid.