



System Operators,
Transmission System Owners,
Generators, Suppliers, Traders,
Customers and Other Interested
Parties

*Promoting choice and value for
all gas and electricity customers*

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Dear Colleagues,

Update on the Electricity Balancing Significant Code Review (EBSCR) and request for comments on proposed new process to review future trading arrangements

This letter informs stakeholders of our decision to amend the scope of the Electricity Balancing Significant Code Review (EBSCR). We are seeking industry views on our proposal to start a separate project to draw up a high level design for future trading arrangements. Please send your views by 12 April 2013 to gb.markets@ofgem.gov.uk.

Ofgem's work to address future challenges in the electricity market

The electricity market is in transition. The Government's Electricity Market Reform (EMR) is driving a significant shift in the generation mix towards more renewables; European reforms are pushing towards a single European electricity market, known as the EU Target Model (EU TM) and capacity margins are tightening over the next decade as ageing plants close.

Ofgem already has work underway to address some of the issues associated with these developments, as follows:

- We launched the Electricity Balancing Significant Code Review (EBSCR) in summer 2012, followed by an initial consultation¹. The EBSCR aims to incentivise an efficient level of security of supply and address our longstanding concerns with short term price signals identified in Project Discovery.
- With regard to the EU Target Model (EU TM) we are working with industry to comply with binding implementation requirements and, along with other regulators and Transmission System Operators (TSO) in Europe, to finalise the remaining detailed design of the EU TM. We issued an open letter on this and held a workshop in spring 2012².
- Also, we work closely with DECC on the detailed design of EMR to ensure alignment between our work and the Government's reforms. In particular we recognise the close interaction between the design of the Capacity Mechanism and cash-out reform.

¹See: launch statement <http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/electricity-balancing-scr/Documents1/Electricity%20Balancing%20SCR%20Launch%20Statement.pdf> and initial consultation <http://www.ofgem.gov.uk/Markets/WhIMkts/CompandEff/electricity-balancing-scr/Documents1/Electricity%20Balancing%20SCR%20initial%20consultation.pdf>

²See: <http://www.ofgem.gov.uk/Europe/Documents1/EU%20Target%20Model%20open%20letter.pdf>

Responses to the initial consultation showed that many stakeholders supported the EBSCR process. However several stakeholders raised two key concerns. Firstly, they stressed the importance of consistency of any proposals introduced under the EBSCR with developments related to EMR and the EU TM. Secondly, stakeholders expressed concerns about the timing of some of the wider considerations³ under the scope of the EBSCR and suggested these ideas should be assessed on a longer time frame to allow for further consideration of the issues. Stakeholders also emphasised that it is crucial that interactions between different reforms and their timings are properly considered before we make any policy decisions. Some respondents also called for a comprehensive vision for the market which would encompass the full range of changes that are happening.

In a similar vein, responses to our open letter on EU Target Model implementation in GB highlighted that whilst the GB market is broadly compatible with new binding requirements which will be set out in European Network Codes⁴, some of these requirements are likely to interact with GB reforms and may have far reaching implications. These interactions include, for example, Ofgem's reforms of GB balancing arrangements with the emerging European Network Code for electricity balancing, as well as the relationship between the EMR Capacity Mechanism and the EU TM.

Our proposed way forward in response to stakeholders' feedback

To address stakeholders' comments we have reviewed the scope and timings of the EBSCR. We consider that there are: (i) issues, particularly with respect to cash-out prices, which need to be addressed in the short term; and (ii) longer term issues (such as reserve procurement and the potential introduction of a Balancing Energy Market), which would benefit from being looked at in the context of market changes and wider GB and EU reforms to form a coherent view on how future trading arrangements may need to develop.

Therefore we have decided to:

- a. Focus the scope of the Electricity Balancing SCR on market issues which stakeholders have indicated require immediate attention;
- b. Continue our work on implementing binding changes under the EU Target Model, particularly with respect to access rules on interconnectors and cross border trading.

We also propose to launch a new project to develop a high level design for the GB's future electricity trading arrangements. The purpose of this project would be to ensure that, in the face of the key changes in the industry, the trading arrangements deliver: efficient operation of existing assets; appropriate incentives to maintain existing assets and invest in new capability⁵; and effective and efficient integration with wider European markets to the benefit of GB consumers.

More detail on each of these three work streams is set out below and annexes to this letter contain further information on the scope of the EBSCR and the issues which we might consider in a new Future Trading Arrangements Design project.

Electricity Balancing Significant Code Review

We have reduced the scope of the EBSCR to prioritise changes addressing long-standing concerns with existing balancing arrangements. In particular the EBSCR will now focus on cash-out price formation and the need to improve cost reflectivity and incentives to provide

³Examples of wider considerations under the EBSCR include proposals for more radical changes to the balancing arrangements such as a Balancing Energy Market, alternative balancing arrangements for renewable generation and a separate market to procure reserve.

⁴The European Network of Transmission System Operators for electricity (ENTSO-E) is currently developing draft legislation (Network Codes). Once approved via Comitology these will be directly applicable to the UK. For more information and an indicative timetable see the ENTSO-E website: <https://www.entsoe.eu/major-projects/network-code-development/>

⁵Including power generation, transmission, interconnectors, storage and demand side capability.

flexibility and security of supply. Details of the reduced scope can be found in Annex 1. We consider that it is important to proceed with these changes now in parallel with the Government's work on the development of the Capacity Mechanism (CM) to ensure that the balancing arrangements and the CM provide consistent incentives. Whilst the implementation of the European Balancing Network Code is likely to require further changes to the balancing arrangements, we consider that the risk of undoing the reforms that we intend to pursue at this stage is limited.

We will continue the EBSCR along the timelines set out in our launch statement. We aim to publish a draft policy decision in spring 2013 and a final policy decision in early 2014.

We have also taken on board stakeholders' request for further engagement before publishing a draft decision. To that end, we have established an EBSCR Technical Working Group (TWG), consisting of a range of industry experts we have selected based on nominations from trade organisations. This group will allow us to have technical discussions at a working level with industry around the details of our policy considerations as well as our analytical approach to the EBSCR impact assessment. The TWG will be in addition, not instead of our usual stakeholder engagement.

Implementing binding changes under the EU Target Model in the short term

Ofgem has been working on developing and implementing European electricity market harmonisation in GB to ensure that stronger integration with Europe is to the benefit of consumers. This work primarily focuses on developing the market arrangements for how we use our interconnectors so that GB can access cheaper energy and reserves located overseas when available.

Much of this work is driven by external deadlines. The work involves close working with other European regulators and TSOs to both produce the new European network codes and implement new arrangements prescribed by the codes directly affecting interconnectors. One example of this is through the North West Europe implementation project⁶ where Ofgem is leading on Cross-Border Intraday market coupling.

Proposal to launch a new project on Future Electricity Trading Design

Rationale for the project

In February 2010, we presented the conclusions from Project Discovery⁷, Ofgem's year-long study to assess whether the GB electricity and gas market arrangements are adequate for delivering secure and sustainable supplies over the next 10 to 15 years.

Discovery identified a number of challenges facing the electricity and gas industries and highlighted concerns that the current trading arrangements do not:

- provide the right signals for investment;
- provide the right signals for efficient operation;
- allow equal treatment of the demand side;
- mitigate risks associated with the increasing interdependence on international markets;
- ensure consistency between gas and electricity.

We concluded that these concerns may lead to the following risks for GB consumers:

- higher cost of electricity for domestic and business consumers;

⁶The Regional Initiatives (RIs) represent a bottom-up approach to the completion of the internal market in electricity. The North West Europe (NWE) projects bring together TSOs and regulators from nine countries including the UK, and aim to implement day-ahead market coupling and intraday continuous trading across the region. See the ACER website for more details on the RIs:

http://www.acer.europa.eu/Electricity/Regional_initiatives/Pages/default.aspx

⁷ See: http://www.ofgem.gov.uk/Markets/WhIMkts/monitoring-energy-security/Discovery/Documents1/Project_Discovery_FebConDoc_FINAL.pdf

- low carbon objectives for 2020 may be missed, increasing the dependence on imported gas for electricity generation and leading to greater decarbonisation costs in the future;
- risks to security of supply if the incentives to make additional peak supplies available are not strong enough at times of system stress.

There have been a number of policy and market developments since Project Discovery, which may serve to mitigate, or in some cases exacerbate, these risks to consumers.

Government has launched EMR with a strong focus particularly on low carbon objectives and security of supply. The carbon price floor and FIT CfD are to be introduced to support low carbon investment, while a Capacity Mechanism is being considered as a potential solution to address security of supply concerns.

Expected changes in the generation mix have now started to materialise, with the increasing penetration of intermittent generation having an impact on constraint and balancing costs. Technological changes, together with progress towards smart meter roll-out, hold out the potential for more participation from the demand side.

Meanwhile, upcoming European legislation for the EU Target Model, to be implemented in the form of binding Network Codes, has added weight to the challenge of realising benefits for GB consumers from greater European integration. As we set out in our March 2012 open letter, the impact of the Target Model on GB will be significant. In addition to removing obstacles to cross-border trading, implementation requires the development of liquidity in the day-ahead market and the consideration of appropriate price zones to manage internal constraints more efficiently.

Given the challenges identified in Discovery and subsequent market and policy developments, it is important that the electricity trading arrangements remain fit for purpose and adapt to the changes triggered by Government policy, EU reforms and market trends. As highlighted by several stakeholders in their responses to our EBSCR consultation, a holistic approach is required to consider the strong interactions between the multiple drivers of change in the electricity market. Without a clear and common understanding of the future trading arrangements, there is a concern that we may end up with an incoherent set of mechanisms borne from a piecemeal approach to market reform, and/or a series of overlapping reforms which may involve undoing previous decisions within the space of just a few years.

We think that work undertaken now to form a view, and obtain consensus, on the shape of future trading arrangements could lead to improved investor certainty, with benefits for consumers in terms of lower cost of capital and less redundancy in systems redesign. In the absence of a clear longer term roadmap for our trading arrangements, there is a risk that consumers pay more than necessary for electricity consumption, decarbonisation and security of supply.

We consider that it would be very important that DECC and Ofgem work closely to form a shared view on future trading arrangements so that industry stakeholders have more certainty on the future environment in which they will operate. We are discussing with DECC how best to achieve this.

Why now?

We recognise that market participants are facing a multitude of parallel initiatives. Some of these originate within GB - including EMR, Retail Market Review (RMR), smart meter roll-out and the Green Deal - while others are the result of European developments such as the Network Codes, REMIT and EMIR⁸. Engaging effectively in all these GB and EU initiatives

⁸REMIT is the Regulation on Wholesale Energy Markets Integrity and Transparency and EMIR is the European Market Infrastructure Regulation.

may present challenges for many stakeholders. However, we believe there are a number of drivers for commencing this new work stream in 2013:

- EMR is now moving from the design phase to implementation. As the details of EMR are finalised, it will be important to consider whether the existing trading arrangements are optimally aligned with the mechanisms being established by EMR, so that potential modifications to the arrangements can be identified in timescales consistent with EMR implementation and investors' investment decisions.
- Investors are starting to commit to projects as the investment environment under EMR becomes clearer. Establishing a high level vision of the GB trading arrangements at an early stage should provide investors with greater clarity as to their future operating environment. The alternative of postponing consideration of potential changes to the market design until the current arrangements are demonstrably no longer fit for purpose or to meet binding EU legislation that mandates sudden changes may prove more disruptive to investors in the medium term.
- Key aspects of the EU TM are also moving towards implementation, with some binding obligations due to come into force in 2014. Other details of the EU TM have yet to be specified (for example with respect to harmonisation of balancing markets) and draft legislation is currently under development. Developing a long term vision for the GB trading arrangements will build on the known features of the EU TM, while providing an opportunity to influence further harmonisation measures.

Approach and process

Our proposed approach to considering potential changes to the GB trading arrangements is to build on the successful characteristics of NETA while reflecting Ofgem's new responsibilities with respect to European integration and incorporating the features of EMR and its impact on the market.

Many of the existing features of the trading arrangements and the principles underlying them are expected to remain fit for purpose. However, given the scale of the changes to the electricity market that are already in train – European TM, EMR, smart meter rollout, renewables build-out, existing plant closures – it is to some extent inevitable that some aspects of the current trading arrangements will need to adapt in order to continue operating in the best interests of GB consumers.

If the decision is made to go ahead with this project, we will set out a timetable with clear deliverables at each stage of the project. The design phase would be expected to last about 12 months with the final output being a document containing a high level design for the future trading arrangements. We would envisage setting up a range of working groups and holding regular workshops to gain stakeholder input during this design phase and to ensure that all interested parties are informed of progress and early thinking.

Having developed a high level picture of future trading arrangements in conjunction with stakeholders, the likely next step would be a roadmap for implementation. This would allow us to consider carefully the appropriate sequencing, timing and responsible party for implementation of different parts of the new arrangements, and create an orderly process for reform. The interaction with other initiatives, and industry's ability to resource and support the process, will be key considerations.

Annex 2 provides more details about our initial views on issues, approach and process.

Questions

This letter invites views from all interested stakeholders on our proposed Future Trading Arrangements Design project. In particular, we are interested in your views on the following questions:

- 1. Do you agree Ofgem should launch a project to create a high level design for the future electricity trading arrangements?**
 - If not, why not and how would you see the changes to the industry noted above being managed?
- 2. What key issues should be examined as part of a work stream on future GB trading arrangements?**
 - We welcome specific comments on our initial thoughts set out in Annex 2.
- 3. What form should the process take?**
 - How can the process help increasing certainty about the impact of the EU TM and its interactions with EMR while limiting any unintended detrimental effect on investors' certainty?
 - What structures should we use to maximise the opportunities for stakeholder involvement?

Next steps

We will continue to work on the EBSCR and on implementing binding changes under the EU TM as indicated above.

We welcome stakeholder responses to the questions we have raised in this letter regarding our proposal to set up a new process to look into future trading arrangements. Please send any comments you may have to gb.markets@ofgem.gov.uk by 12 April 2013.

We are planning a stakeholder round table to discuss the possibility of Future Trading Arrangements Design Project on 25 March 2013 (time and venue TBC). To get reactions for the potential workstream at this meeting we aim to limit the number of participants to approximately 30. To register your organisation's interest or for further details please email us at the above address by 1 March 2013.

If you have any comments or questions on the content of this letter, please contact Giuseppina Squicciarini (Head of Electricity Policy, Wholesale Markets) at giuseppina.squicciarini@ofgem.gov.uk.

Yours sincerely



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Partner, Wholesale Markets

Annex 1 - New scope of the Electricity Balancing Significant Code Review (EBSCR)

We have decided to press ahead with the considerations of the EBSCR where we had long-standing concerns. Stakeholders have expressed concerns about progressing some of the more radical considerations, given ongoing changes in the electricity market, e.g. through the EU target model developments. We have decided to remove the considerations from scope which would in our view have had the strongest impact on the underlying structure of the arrangements.

We will proceed with the following scope:

1. **More marginal cash-out price** - We will consider whether cash-out prices should be 'more marginal'. Current cash-out prices are calculated by averaging a number of most expensive trades made by the SO to balance demand and supply. We could base the calculation on a smaller volume of trades.
2. **Single or dual cash-out prices** - Currently parties who produce or buy more than they need to receive less than the charge for those who produce or buy less than needed. The payment and the charge could be made the same.
3. **Improving allocation of reserve cost** - Some necessary actions taken by the SO, such as the need to provide reserve, can depress or distort the cash-out price. We will consider ways of improving how costs are targeted to improve balancing incentives.
4. **Attributing a cost to non-costed actions** - Currently cash-out prices do not reflect the cost of all actions taken by the SO. For example demand reductions (i.e. when consumers are disconnected) are not included in the calculation. They could be included and consumers could be paid for the disconnection.
5. **Secondary considerations**
 - a. Single or separate trading accounts - We will consider allowing parties with both generation and supply businesses to net their opposite balances from the two trading accounts. Currently they must balance both their generation and supply sides separately.
 - b. Gate closure - We will consider whether any changes to gate closure would be beneficial, eg extending the contract notification period
 - c. Other secondary considerations - Changes to other aspects of the arrangements may be necessary contingent to primary considerations, eg to residual cash-flow reallocation cash-flow.

We have removed the following considerations from the scope of the EBSCR. We consider they should progress as part of the work on future trading arrangements:

1. **Pay-as-bid or pay-as-clear for balancing services in the balancing mechanism** - Parties who submit bids and offers to help the SO balance the system are currently paid the price they have bid. We had considered changing this so that all parties would receive the same price, the price of the most expensive bid accepted. However, we agree with most stakeholders' view that that this change could only be implemented with a more radical change to the balancing mechanism.
2. **Balancing Energy Market** - We had considered a new balancing energy market that allows parties to trade off their imbalances close to real time, and allows the SO to procure balancing energy. However, we agree with stakeholders that this policy option would need to be further developed in much more detail and is likely to have

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a significant effect on the structure of the overall balancing arrangements and is therefore better considered in the round with other long-term developments.

3. **Alternative arrangements for renewables** - We had considered whether arrangements could be changed for renewable generators, eg aggregating renewable output and balancing it centrally could improve the overall balancing efficiency. However, we agree with stakeholders' scepticism on the potential unintended consequences of these interventions and believe they would be best considered as part of a holistic review of the market.
4. **Day-ahead reserve market** - As a secondary consideration, we had looked at whether a separate market for reserves could help participants and the SO better manage imbalances on the system. Stakeholders have questioned the need for this change and we think as this would be a quite significant change it is better to consider it in the round of other long term developments.

Annex 2 - Proposed Future Trading Arrangements design project: initial views on issues, approach and process

Preliminary issues identified

If we progress with a new project to look into future trading arrangements, the initial phase of work will entail engaging with industry stakeholders and understanding what changes may be required for the GB market to work effectively and efficiently after implementing EMR and converging with the European Target Model. Our focus would be on the possible “levers” which we could pull to ensure future trading arrangements ensure efficient asset operation (including power generation, transmission, interconnections, storage and demand side capability) and provide appropriate incentives to maintain and invest in capability. These levers would include dispatch and balancing arrangements and the respective roles of market participants and the system operator. Examples of potential issues to be considered are set out below.

1. Integration of renewables

The effective integration of renewables represents a key challenge for the electricity industry over the period to 2020 and beyond. The penetration of renewables, particularly intermittent wind-powered generation, is set to continue rising sharply this decade, underpinned by binding EU targets and the FiT CfD support introduced by EMR. However, the existing trading arrangements, dating back to the NETA implementation in 2001, were not designed primarily with the integration of renewables in mind.

For intermittent renewables, the accuracy of generation output forecasts can improve significantly between the day-ahead markets and real time. Opportunities for renewable generators to trade closer to real time may be enhanced by the development of a cross-border platform for intraday trading as part of the European Target Model. A Balancing Energy Market, a concept discussed within the previous wider scope of EBSCR, could provide a focus for liquidity close to real time, enabling renewable generators to trade out imbalances at or near gate closure.

We therefore consider that with expected significant change in the generation mix it is key to ensure that future trading arrangements ensure appropriate routes to market to renewable generation.

2. Facilitating Demand Side Response

Technological advances, together with the roll-out of smart meters, are creating an opportunity for greater demand management, which could help to mitigate the impact of intermittent generation. However, as with renewables, the current electricity market design is not centred on integrating Demand Side Response (DSR).

DSR already plays a role in the market, as evidenced by the long-standing practice of ‘triad avoidance’ by large industrial and commercial customers reducing load during peak periods to lower their exposure to transmission network charges. However, it is debatable whether the current arrangements reflect the full value of DSR flexibility or provide sufficient opportunities to bring forward DSR from smaller scale business customers (and ultimately from aggregated residential customers).

Given that peaking generators are likely to receive support from a Capacity Mechanism under EMR, demand-side participants will require a clear route to market in order to compete effectively. DECC is developing proposals for a DSR pilot auction, but we are keen to ensure there are enduring arrangements to facilitate the participation of DSR in the electricity market.

The consideration of DSR's role in the trading arrangements will be informed by discussions in other fora such as the Smart Grids Forum and Ofgem's Smarter Markets project⁹. Key issues include the broader commercial arrangements for supporting the commercialisation of DSR services, and other innovations in electricity balancing such as storage.

3. Efficient balancing and system operation

The growth of intermittent generation increases the need for flexibility to manage changes in renewable output over various timescales. Additional generation or DSR resources may need to be held in reserve to cover the uncertainty in wind output. The requirements for some ancillary services will increase, and the need may arise for new balancing services. Generation plant which have historically run close to base load may need to operate more flexibly in the future, increasing or decreasing output in response to changing demand, wind and price levels. Technical and commercial arrangements may require updating to enable all resources – including intermittent renewables – to contribute towards balancing the system. The future electricity market design should signal clearly the requirement for flexibility and ensure there are sufficient incentives for the provision of balancing services. A separate market for reserves (eg day-ahead), included as a secondary consideration in the EBSCR, may be one approach to co-ordinate the efficient provision of flexibility ahead of gate closure.

Another challenge for the industry is the efficient management of transmission congestion. When NETA was introduced in 2001, there was relatively little congestion within the England and Wales system and the cost of managing constraints was consequently low. However, several factors have led to transmission constraint costs becoming more significant, a trend which is set to continue in the foreseeable future. The incorporation of Scotland in the BETTA market design from 2005 has revealed the cost of managing grid constraints within Scotland and on the Anglo-Scottish border. The introduction of 'Connect and Manage' to facilitate the rapid build-out of low-carbon generation has, as intended, led to new generators being connected in advance of network reinforcement. The increase in intermittent generation, much of it connecting in remote locations including offshore, has also required a reappraisal of transmission planning criteria (given the low load factors of some intermittent generation sources, it may be inappropriate to build transmission capacity that would be utilised only infrequently). Finally, the recent removal of locational network charges (TNUoS) from interconnector flows, in line with EU integration initiatives, has eliminated locational signals for interconnection investment. Although some of these issues are likely to be transitory as the transmission licensees progress their network reinforcement plans, the GB transmission system in years to come is likely to have significant levels of 'structural' congestion.

In the current trading arrangements, gate closure - one hour ahead of delivery - effectively marks the passing of responsibility for balancing supply and demand from market participants to National Grid as system operator. However, there are a number of discontinuities between the traded energy markets operating ahead of gate closure and the Balancing Mechanism administered by National Grid. While market participants are settled at half-hourly resolution on a GB-wide basis, National Grid needs to balance supply and demand second by second, taking into account locational constraints and reserve holding requirements. National Grid's role in the current arrangements, originally envisaged under NETA to be that of 'residual balancer', has arguably become increasingly significant.

With system constraints – due to flexibility and location – set to become more material in future, it is for consideration whether there are appropriate incentives and signals for market participants to facilitate efficient balancing and system operation.

⁹ Ofgem set out a work programme for promoting smarter energy markets in July 2012, see: <http://www.ofgem.gov.uk/Markets/sm/strategy/Documents1/Promoting%20smarter%20energy%20markets%20-%20a%20work%20programme.pdf>

4. Effective integration with the wider European market

Compliance with the European TM will necessitate changes to the GB trading, balancing and settlement arrangements. It will be important to assess potential changes from the perspective of maximising the benefits of wider EU integration for GB consumers.

The European TM offers the potential to reduce balancing costs by facilitating access to cross-border resources. The creation of a GB Hub and the wider process of coupling markets could support further improvements in near-term liquidity and the development of a robust reference price for GB. However, there will be interactions to consider between the EMR Capacity Mechanism and the TM, to ensure that suitable price signals in the energy market are maintained at times of scarcity and that the costs of maintaining security of supply are allocated appropriately between consumers in neighbouring markets.

As outlined in Ofgem's March 2012 open letter, consideration of market splitting and price zones under the European TM could support the integration of renewables, mitigating the costs of balancing and system operation for consumers. By ensuring consistency between flows on interconnectors and the requirements of the internal system, price zones could also benefit security of supply objectives. However, the impact of market splitting on the design of low carbon support schemes and capacity mechanisms will also require consideration to ensure the effectiveness and efficiency of these mechanisms.

5. Incentives to maintain and invest in new capability

DECC's EMR proposals include a Capacity Mechanism (CM), providing both existing and new generation assets with the opportunity to earn revenues outside the energy market. It will be important to ensure that the energy and balancing arrangements work effectively alongside the CM to deliver security of supply in the longer term.

As an example, it will be appropriate to review the nature and timeline of reserve services currently procured by National Grid. Given that many reserve providers will also wish to participate in the CM, there are multiple interactions to consider including the respective incentive and penalty regimes, the methodology for determining CM and reserve volumes, and the co-ordination of dispatch decisions between participants and the System Operator.

More broadly, it is not yet clear whether the CM will be a transitional or enduring feature of the market arrangements. We note that the interaction between national capacity mechanisms and the European Target Model is now being considered by the European Commission and by ACER. Longer term, there may be scope to develop regional mechanisms which provide locational price signals across a number of borders with respect to investment in interconnection, transmission and generation.

As we have started to outline above, the electricity system will face a number of challenges in the future. To meet these challenges, it will be necessary to invest in new capabilities, which may include demand-side response, increased interconnection, storage and generation capacity. The optimal solution is likely to involve deploying a mix of different technologies. In order to reach a cost-effective outcome for consumers, the trading arrangements will need to provide appropriate incentives to invest in new capability and evaluate trade-offs between different technologies.

6. Interactions with gas arrangements

Although much discussion has focused on the growth of renewables, there will continue to be strong interactions between the gas and electricity sectors, with gas-fired generation expected to remain a key component of the GB electricity system for the foreseeable future. As the gas trading arrangements evolve – for example, driven by EU single market integration and potential security of supply interventions – it will be important to consider the implications for the electricity market. The impact of any changes in the

electricity trading arrangements upon the gas sector will also need to be considered.

7. Institutional arrangements

Having considered the potential changes required for the GB market to work effectively and efficiently in future, there may be a need to re-assess the balance of responsibilities between different industry parties (such as the System Operator, generators, and the demand-side) with consequent implications for institutional arrangements.

Approach

Our proposed approach to considering potential changes to the GB trading arrangements is to build on the successful characteristics of NETA while reflecting Ofgem's new responsibilities with respect to European integration, as well as the 'pre-defined' components of the future arrangements such as the EMR CfD instrument design and the EU TM Network Codes.

The detailed design of the trading arrangements under NETA was informed by a set of core principles, including:

- Market signals drive generators' self-despatch decisions, with risks and incentives faced by those best placed to manage them;
- Strong incentive on generators and suppliers to self-balance, leaving a residual role for the System Operator with respect to balancing and congestion management;
- Generators, suppliers and traders are free to choose when and how to contract, with support for trading close to real time and information transparency.

Going forward, we envisage that these principles will need to be adapted or extended to better reflect new policy objectives, such as the need for prices to fully reflect scarcity and risks to security of supply.

It should be emphasised that we do not envisage that establishing a long term vision for GB electricity trading arrangements will involve a radical departure from the current market design. Many of the existing features of the trading arrangements and the principles underlying them are expected to remain fit for purpose. However, given the scale of the changes to the electricity market that are already in train – European TM, EMR, smart meter rollout, renewables build-out, existing plant closures – it is to some extent inevitable that some aspects of the current trading arrangements will need to adapt in order to continue operating in the best interests of GB consumers.

Process

The first step in this process is to seek stakeholder views on initiating a stream of work looking at future electricity trading arrangements. The responses we have received to the EBSCR and European TM consultations over the past year have clearly shown the desire for a holistic understanding of the GB trading arrangements in the longer term, taking account of the interactions with EMR and the TM. Nevertheless, we are aware that launching a new workstream may in itself contribute to investor uncertainty, and we welcome stakeholder input on how to mitigate this risk.

If the decision is made to go ahead with this workstream, we envisage following a stepwise approach with a predefined timetable and clear deliverables. The project scope, timeline and engagement process would be set out at the launch. The project would then commence in 2013 with a design phase and the objective of drawing a high level picture of future trading arrangements within one year. We would first establish the core principles and key issues shaping the future trading arrangements. Following consultation, we would then consider what changes may be required and develop proposed high-level designs.

We suggest that a planning phase would follow the design phase. This will produce an implementation timetable for further developing and delivering the agreed design changes. It is expected that different elements of reform will be taken forward in different timescales. The objective will be to set out an orderly process for reform whereby the most important issues are dealt with first and sequenced appropriately.

The workstream would be structured to provide opportunities for stakeholder engagement at all levels. We are currently considering:

- A Senior Advisory Panel to provide strategic input and direction from stakeholders;
- Focus Groups to provide expert input on the key issues identified;
- Regular workshops will be held to discuss the design principles, change proposals and the way forward; and
- Using a dedicated micro-site on our website to keep a wide range of stakeholders informed of our progress and thinking. This would involve publishing think pieces, which interested parties could respond to, as well as formal consultations.