**Conflict of interest - definition:**
- A situation that has the potential to undermine the impartiality of a person because of the possibility of a clash between the person's self-interest and professional interest or public interest.
- "Person" = any party involved in the energy system (network opertors, flex providors, retailers, etc.…)

| | Conflict of Interest | | | Stakeholders | | Risk level (H/M/L) | | | Development area | Mitigation Strategy (if it exists) | Timeline | | Post-mitigation risk level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ref | Item | Description of Impact | Category that has most to gain | Category that has most to lose | Likelihood | Impact | When (ED1/ED2) | Area of development that may provide more insight or a solution | Start description with either Accept - Avoid - Reduce -Transfer | First identified when? | If closed, describe when and why | Describe if and how the mitigation affects the likelihood or the impact |
| | 1 | Network versus customer flexibility solution | Risk that network operators, in their capacity of system operator, do not give flexibility solutions full consideration because of a preference for network (capex) solutions, and/or inability to introduce change in their operations<br>Risk that networks holds back information to justify their decision (criteria used, etc…) and makes scrutiny difficult | Distribution System Operators | Customers, as the most cost effective solution will not be chosen | L | M | ED1 | - DNO to publish CBA assessment criteria for non-network solutions<br>- Best practice is being developped: SSEN commissioned Frontier Economic to write up decision criteria<br>- An area where Ofgem needs to set the requirements on the process? | Mitigate (i.e. lower probabiliy): DNOs are committing to flexibility principles (ON WS1a), built from staleholder feedback | Dec-18 | open | |
| | 2 | Merit order is not transparent and/or unfair | Risk that system operator applies some unfair, unwarranted and opaque discretion in their choice of provider when it comes to picking amongst a list of them at the time of the event. | Distribution System Operators | Flexibility service providers with a valid offer unfairly ignored | L | M | ED1 | - DNO experience and innovation projects ( eg: WPD potentially developing a best practice in Flexible Power and in EFFS) | | Dec-18 | open | |
| | 3 | Network-owned versus investor-owned storage | In a scenario where they can earn a transactional revenue from their own storage, this is the risk that network operators, in their capacity of system operator, do not give investor-owned storage full consideration. | Distribution System Operators | Customers, as the most cost effective solution will not be chosen | L | M | ED1 | - Calls for Ofgem to clarify new licence condition to allow for cost considerations (i.e. what if DNO-owned provides services for cheaper?) | Avoid: Ofgem has banned DNOs from owning and commercially operating their own DER (Licence into force 1st April 2019) | Dec-18 | open | |
| | 4 | DNO / TO provision of services from funded assets may impact competition | Within the constraints of Ofgem's decision (see point above), the use of funded assets or capabilities developed through "seed funding" for innovation may require the customer to "pay twice" for services. It also leads to an incumbent advantage for DNOs that might inhibit the development of markets. | Distribution System Operators | Customers, as system costs are inflated | L | H | ED1 | •Ofgem will need to specify how funded assets should and should not be used in delivering services<br>•If such services are lowest cost to the customer, there should be a mechanism for use<br>•Treatment of revenues / incentives | | Dec-18 | open | |
| | 5 | Ability for generators to trade ROCs (or equivalent) rates for flexibility amobgst themselves | Swapping position during constraint situations creates an inverted Merit Order and drives up energy costs | Flexibility service provider | Customers, as system costs are inflated | | | ED2 | Investigate the legality | | Dec-18 | open | |
| | 6 | Gaming | Early indication of the potential of a constraint rewards those that deliberately accelerate the triggering of the constraint and subsequently get paid for peak reducing services in the CMZ.<br>Providing parties with visibility of emerging constraints can provide them with the ability to trigger those constraints which they are then paid to resolve | Flexibility service provider | Customers, as system costs are inflated | M | M | ED2 | Reduce:<br>- Can be addressed via market deign, charging arrangements, connections processes, licence conditions<br>- Requires joining up of Ofgem's Charging Review with Open Networks project<br>- Sub-metering / base lining may also provide a solution | | Dec-18 | open | |
| | 7 | Promotion of network needs | No ability or willingness to neutrally frame network needs in order to avoid excluding new technologies and players.<br>Failing to present network needs in a transparent way, may reduce the scope for flexibility providers to engage in new markets. | n/a | Flexibility service provider | M | M | ED2 | - WS1A looking at market principles and procurement to minimise this<br>- Ongoing stakeholder feedback<br>- DNO experience and innovation projects (best practice adoption) | | Dec-18 | open | |
| | 8 | Monopoly abuse of flexibility provider/lack of market liquidity and ocmpetition | Where a flexibility provider is the only asset (or there are several but no real market liquidity) capable of helping to avoid a specific, locational investment, it can increase its prices i.e. game locational service procurement which will increasing costs to consumers. | Flexibility service provider | System Operators, Customers | L | L | ED2 | - The impact of this is minimised by the fact that flexibility will most often be in competition with a network solution, which provides a cap value<br>- This issue will be addressed by market forces as competitors see an opportunity to bring an alternative offer to the DSO<br>- DNO experience and innovation projects | Reduce:<br>- Design of market framework and means to discover efficient prices<br>- Promote increasing number of participants and/or simulated competition | Dec-18 | open | |
| | 9 | IDNO revenue driven by demand so no incentive exists to encourage alternate solutions | IDNOs "opt out" and do not engage with the emerging market space.<br>Customers on their networks cannot benefits from flexibility services. | IDNOs | Customers of IDNOs | M | L | ED1 | •Regulatory framework for IDNOs may need to be considered | | Dec-18 | open | |
| | 10 | Conflicts between "mandated" vs. "procured" flexibility (i.e. DSO market power due to flexible connections agreements) | Those on non-firm connections typically have no guarantee over the level of curtailment they can expect. This could effectively become a free resource for DSOs e.g. reactive power / power factor specifications in connections agreements may drive additional market requirements and influence prices that service providers can deliver. This may compromise efficient operation of the market. | | Customers | M | H | ED1 | •Greater standardisation of flexible connection approaches, and potential changes in connection boundaries, incentives on DSOs etc<br>•Commercial incentives to release capacity<br>•Customer opt-outs | | Dec-18 | open | |

**Unintended consequences - definition:**
- A term used to describe a set of results that was not intended as an outcome. Though unintended consequences may be anticipated or unanticipated, they should be the product of specific actions within the process. The concept of unintended consequences is part of the Six Sigma philosophy and encompasses three types of results: Unexpected benefit, Unexpected drawback and Perverse result.

| Unintended consequence | | | Stakeholders | | Risk level (H/M/L) | | | Development area | Mitigation Strategy (if it exists) | Timeline | | Post-mitigation risk level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ref. | Item | Description of Impact | Category that has most to gain | Category that has most to lose | Likelihood | Impact | When (ED1/ED2) | Area of development that may provide more insight or a solution | Start description with either Accept - Avoid - Reduce -Transfer | First identified when? | If closed, describe when and why | Describe if and how the mitigation affects the likelihood or the impact |
| **Distributional Customer Impacts** | | | | | | | | | | | | |
| A1 | Inclusivity: Unequal opportunities for different customer groups wishing to participate in flexibility markets | Some customers are unable to participate due to their situation, lack of technology or technical capability of specific assets<br><br>Some customers may be unable to change patterns of electricity (or wider energy) usage and may face higher network bills as a result (or be unable to access new revenue streams through flexibility services) | n/a | Unengaged customers or customer with little or no DER | H | M | ED1 | - Government social policy to protect vulnerable customers unable to respond to price signals<br>- a carefully thought through incentive framework | | Dec-18 | open | |
| A2 | Perceived unfairness or consumer backlash from a move away from 'postage stamp' principles (charges are the same for all customers within a DNO area) | If charging principles are modified to be cost-reflective, some communities and customers will be paying higher network charges whilst other benefit. A negative impact is higher for communities with a high cost to serve (e.g.. rural communities). The situation could be further exacerbated due to a low concentration of flexible DER in such locations.<br>Is there political acceptance for network DUoS tariffs which vary by location?<br>Varying network tariffs may not align well with the retail price cap. | Those living (by chance or by design) in the locations benefiting from cheaper DUoS | n/a | H | L | ED2 | • Potentially greater information provided to consumers around the basis of network charges<br>• Dialogue with Ofgem and suppliers around interaction with the price cap<br>• Policy impact assessments may need to include distributional analysis as standard<br>• Network charges may need to be more visible on consumers' energy bills to explain the costs they are paying | Access and charging review | Dec-18 | open | |
| A3 | Electricity supply availability/performance becomes inconsistent across different areas. Different implicit values of lost load between transmission and distribution. | There are implicitly different values of lost load (VoLL) in the system today e.g. different compensation for network outages versus VoLL used to calculate the generation capacity requirement. As the system becomes more integrated, from a customer perspective all outages are the same regardless of reason and it becomes increasingly perverse that the signals to avoid outages are different in different parts of the system. | n/a | n/a | L | L | ED2 | • Investigate if there is a case for the value of lost load to vary in value (now and in the future)<br>• More co-ordination between different flexibility products and incentive values of lost load such as those used in the Interruptions Incentive Scheme (IIS) | Access and charging review | Dec-18 | open | |
| A4 | Third party intermediaries do not act in consumer interest leading to industry dissatisfaction. | Consumers may not see the full value for their services.<br>Consumers may be locked into long term deals through mis-selling of products.<br>Multiple TPIs providing services for the same customer may not cooperate to ensure the best customer outcome. At worst they could act to the detriment of customer by prioritising their own commercial interests.<br>Poor consumer experience could reduce the levels of engagement. | n/a | Customers of unregulated third parties | M | M | ED2 | • Third parties need to be subject to some form of regulation or binding code of practice<br>• Optimisation rules and data sharing behind a single meter point need to be established | Reduce: The ADE code of business conduct, which may require Ofgem's endorsement for full piece of mind | Dec-18 | open | |
| A5 | Low or negligible financial returns to customers fail to match the promise of savings. Engagement with residential customers is undertaken too early | Poor engagement or lack of value might discourage residential customers from engaging in flexible response. This would reduce the benefits which can be delivered | n/a | n/a | L | L | ED2 | • Careful planning and potentially regulation of engagement with residential customers alongside continued trialling | | Dec-18 | open | |
| A6 | Consumers on passive networks are unhappy paying for DSO operations. Operational costs of DSO socialised | The operational costs of running a DSO will be socialised across all customers while some of the benefits will accrue directly to some connecting customers. | Customers living in areas with high concentrations of DERs. | Customers in areas with low DERs with a largely passive grid (e.g.. Some rural locations and islands) | L | L | ED2 | • Explore how connectees who trigger investment and operational costs face the appropriate costs that they are imposing on the system | Acces and charging review | Dec-18 | open | |
| | | | | | | | | | | | | |
| **Risk of regret** | | | | | | | | | | | | |
| B1 | Industry is too focused on markets and overlooks the benefits of technological solutions | Some lower cost ways of managing increased load and generation are missed because there is an assumption in industry that markets deliver the lowest cost solution. Higher costs to UK customers. | Flexibility service provider | Customers & DSOs | M | M | ED2 | - Individual DNO CBA assessment criteria for non-network solutions<br>- Innovation Projects | Avoid:<br>- The DNOs are currently investing in deploying technical flexibility (innovation projects and BAU).<br>- Continued Innovation Trials<br>- All solutions (reinforcement, DNO technical solutions and customer/market flexibility) are assessed and compared on a level playing field when congestion arises | Dec-18 | open | |
| B2 | Stranding of flexibility assets as a result of a reinforcement or refurbishment being undertaken, with a net saving to UK customer but with local impacts as a result of stranded community or commercial assets. | Business case of flexibility service provider disappears | Consumer, DNO | Flexibility service provider | H | M | ED1 | Open Networks WS1A | | | open | |
| B3 | Network companies spend money building out SO functions which are not needed in the medium/long term because better network access arrangements and charging signals are in place | Market participants will make investments on the back of SO services which could be redundant- and potentially some costs incur to customers unnecessarily due to sunk assets | Consumer | Flexibility service provider | M | H | ED2 | • Further market testing and trialling to understand the role reformed network access and price signals and charging can play + to understand the scale of the role of flexibility | To some extent: Acces and charging review | | open | |
| B4 | Sudden technology advances drastically change assumptions on which decisions are made e.g. cheap in-home storage makes flexibility very cheap | Risk of stranded flexibility contracts result in network consumers overpaying or business case for existing flexibility service providers disappearing. | Agile flexibility providers | Existing flexibility providers, consumers | H | M | ED2 | • Shorter duration of flexibility contracts (but balanced against the needs of providers to make investment case for new assets) | | | open | |
| B5 | Rapid saturation of DER flexibility market coincides with rapid increase in demand, leading to inability to deliver construction volumes due to resource constraints. | Unexpected need for a significant increase in network investment as n | DSOs, flexibility service providers | Consumers | M | H | ED2 | Whole system FES | | | open | |

| Unintended consequence | | | Stakeholders | | Risk level (H/M/L) | | | Development area | Mitigation Strategy (if it exists) | Timeline | | Post-mitigation risk level |
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| **Operational viability** | | | | | | | | | | | | |
| C1 | Sub-optimal dispatch. | Conflicting price signals and different time horizons could lead to sub-optimal dispatch decisions. | N/A | System operators could see system resilience impacted. Market participants may lose out on opportunities. | H | H | ED1 | - Understand the interaction between markets through 'war gaming' different market scenarios<br><br>- Greater standardisation of flexible connection approaches, and potential changes in connection boundaries, incentives on DSOs etc. | Avoid - WS1B<br>WS1A Product 5 Conflict Management & Co-Optimisation | Dec-18 | Open | |
| C2 | Conflicting signals from control systems. | Where DER is providing multiple services to different SOs it is possible that control systems are sending conflicting dispatch signals. | N/A | System operators may not be able to dispatch required service. Market participants may lose out on opportunities. | H | H | ED1 | | Avoid - WS1B<br>WS1A Product 5 Conflict Management & Co-Optimisation | Dec-18 | Open | |
| C3 | Conflicts between firm and non-firm connections. | Those on non-firm connections typically have no guarantee over the level of curtailment they can expect. This could effectively become a free resource for system operators. | System operators could benefit from low-cost solutions. | Market participants are unable to compete with this resource. | L | L | | | Avoid - WS1A P1 Flexibility Market Principles | Dec-18 | Open | |
| C4 | Assessment of generation adequacy with decentralised energy and flexible demand | With more 'fluid' supply and demand, and less visibility given the small scale nature of decentralised energy it may become increasingly difficult to define what is the appropriate amount of generation on the system - this could lead to over- or under-procurement in the Capacity Market. | Established BMU participants who have existing contracts. | New entrants trying to access the flexibility market. | M | H | ED2 | - Map out where responsibilities and accountabilities sit for the various aspects of system security and test how this would work in practice | Reduce - Increased visibility through use of 3rd party visibility platforms and System Wide Resource Register should reduce the impact of this issue.<br>WS1A P1 Flexibility Market Principles | Dec-18 | Open | |
| C5 | Lack of incentives for innovation in technological solutions | Much of the innovation is focused on market based solutions, at the risk that technological innovation is de-prioritised. | Market participants. | System operators and technology innovators. | L | L | ED2 | - Broaden out innovation to technological solutis | Reduce - NIA funding should be deployed by system operators to ensure technological solutions are considered when least cost to consumer | Dec-18 | Open | |
| C6 | Market Oscillation | Different timeframes for markets and (increasingly dynamic) price signals, could lead to instability and requirement for SOs to take multiple corrective actions (potentially causing costs to increase for consumers). | N/A | Customers - the cost of the whole system increases | M | M | ED1 | - Co-ordination is required between markets; Transmission & Distribution Market co-ordination is happening under Open Networks, but more work is required with other markets (eg: wholesale)<br>- CLDS (NPG) NIA innovation project is looking at market rules to coordinate various actors on various markets that would result in wholesystem optimisation<br>- The issue of governance for these rules (who decides they are the right ones and who has the authority to enforce them) is open for debate<br>- Open Networks considering how markets could be better harmonised through standard rules and principles | Reduce - Open Networks, CLDS & SCR should address this as part of flexibility market development. | Dec-18 | Open | |

| Unintended consequence | | | Stakeholders | | Risk level (H/M/L) | | | Development area | Mitigation Strategy (if it exists) | Timeline | | Post-mitigation risk level |
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| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| **System Security** | | | | | | | | | | | | |
| D1 | Risk of reduced clarity of accountabilities across DNO/DSO and TO/ESO, in particular for system security / resilience | As the energy system becomes more integrated, but more complicated, it is not always clear who is ultimately responsible for network and wider system security. This could lead to reduced resilience in the system and sub-optimal investment decision making. | The parties avoiding the risk | The whole electricity system | M | H | ED2 | This has been identified by the Future Worlds Impact Assessment as a critical area of development. Defining Roles & Responsibilities is a key aspect of the Open Networks Project, and will also be informed by key trials such as the TEF Project | Reduce: Defined roles at all voltages and potential Licence Changes | Dec-18 | open | |
| D2 | Arbitraging of different non-delivery penalties | Flex providers may prioritise services that have higher penalties for non-delivery (and/or higher delivery rewards), and some penalty regimes currently are benign or non-existant, and hence may not accurately reflect the true cost of non-delivery. | Flex providers | End consumer | L | L | ED1 | Penalties for distribution network flexibility services are currently very low, and hence innovation trials will need to be identified to understand the potential for market gaming wrt penalties | Reduce: A range of options are available here to minimise this behaviour including harmonisation of penalties, aligning services that can benefit parties at the same time, implementing ban periods, etc. Trials will help identify the best options. | Dec-18 | open | |
| D3 | Increasing reliance on communications infrastructure | New operational solutions are increasingly reliant on high availability communications infrastructure. Comms failures will increasingly become the biggest risk to security of supply. Similarly the more things are interconnected, the higher the risk from hackers and cyber criminals. | Criminals | The whole electricity system | L | H | ED1 | ENA has setup the Strategic Telecommunication Working Group, which includes the Joint Radio Company (JRC). The purpose of this group is to ensure the strategic roll-out and availability of secure communications infrastructure for the electricity networks, as well as to address issues related to security. Similarly the ENA Cyber Security Working Group is ensuring ensure digital systems in the networks. There are also BEIS and Ofgem Working Groups looking to minimise the cyber security threat in networks. | Avoid:<br>- Robust standards<br>- Redundancy<br>- Highly secure systems<br>- 'Fail safe' operations | Dec-18 | open | |
| D4 | Focus only on thermal constraints by DSOs putting wider system at risk | The ESO takes a holistic view of system and energy balancing in the actions it takes. There is a risk that DSOs may not fully understand the consequence of their actions on the wider energy system, if they are only procuring flexibility for specific needs such as managing geographic thermal constraints. | DSOs | End consumer | L | M | ED1 | The Open Networks Project has been setup to address better co-ordination, collaboration and co-operation between Transmission & Distribution Networks. In particular, WS1A and WS1B are investigating how we can better plan and operate the networks at all voltages. | Reduce: A range of options are available depending on the World that we go down. Collaboration between T&D, from planning to real timescales, will be critical to reducing this risk | Dec-18 | open | |
| D5 | Impact of gaming (see Conflit of Interest log) in system security | Gaming potentially has an impact on system security (in addition to the economic impact) since it can lead to behaviours that the SOs are not expecting. | System service providers | End consumer | H | M | ED2 | This is a key focus of various innovation trials exploring flexibility services, but more will need to be done in this space to understand the behavious of the various market players and their impact on system security | TBC - but the SOs will need various back-up options available to them to maintain system security. | Dec-18 | open | |
| D6 | Reduced headroom as a result of efficient markets | The ability to deploy flexibility will reduce headroom in the networks, which would save on investment costs but could lead to less resilience in the system for dealing with shocks. A network that is also running at a higher average utilisation may have an effect on the lifetime of the network assets, and also mean that outage planning is more difficult/costly. | Flex providers | Consumers, SOs | L | M | ED2 | - Engineering standards will have to evolve accordingly<br>- Outage and maintenance planning will have to become smarter and more efficient<br>- It will need to be understood how Flexibility Providers can assist networks under times of system stress | TBC - but the SOs will need various back-up options available to them to maintain system security. | Dec-18 | open | |
| D7 | Lack of visibility at Distribution level, particularly at Low Voltages | Inefficient investment and operational decisions due to lack of information from the lower voltages of the system | Parties providing services | End consumer, SOs | M | M | ED2 | Various areas of development are underway to try and understand how to improve visibility of the networks at LV including:<br>- Access to smart meter data<br>- Deployment of low cost LV substation and cable monitoring by networks<br>- Aggregation and cross-checking of various datasets, and using AI/machine learning to better understand operation at LV<br>- Innovation Projects | Avoid: A range of solutions as mentioned to the left will be deployed by networks | Dec-18 | open | |
| D8 | Information availability facilitates hackers and cyber criminals | Detailed granular data on the structure of the networks and the timing of localised peaks creates the opportuntiy for cyber criminals to disturb the system by taking control of the networks and/or the flexible demand connected to it. | Criminals | End consumer | L | H | ED2 | See D3. | See D3. | Dec-18 | open | |
| **Market power and gaming** | | | | | | | | | | | | |
| E1 | Risk of existing mandatory requirements becoming "paid services" (E.g. ROCO / power quality) therefore increasing cost to consumers | Risk to consumers of rising costs and/or abuse of existing provisions to undercut developing markets. | Generators (Incumbents) | System Operators, Customers | L | M | ED1 | | Avoid:<br>- Clear regulation and clarity within code requirements | Dec-18 | | |
| **System Operator Conflicts** | | | | | | | | | | | | |
| F1 | DNO / TO connection timelines can erode the business case for services | DSOs / ESOs providing long timescale connection offers may prevent the emergence of alternate services which can help resolve the very constraints on the network which are preventing them from connecting. This can lead to overall higher investment costs. | n/a | System Operators, Customers | H | H | ED2 | •Incentive and ability for DNOs to apply wholesystem thinking in order to justify accelerating connections in certain areas<br>•Greater collaboration regarding locations / flexible connections (close to WS2 scope?) | | | | |
| F2 | Regulatory claw-back of asset allowances / funding for flexibility procurement | In a scenario where Ofgem makes a call on1. treatment of cust. flexibility payment(opex/capex) and 2.incentive towards it, there is a risk that the DSO reassess their payments, which would erode the revenue streams paid to flexibility providers, cancelling hereby their ability to privide the service - meaning that network operators need to revert to asset solutions. This means consumers are at risk of 'double funding' a network solution. | n/a | Customers as they end up paying an inflated price | M | H | ED1 | •Clear policy on the regulatory treatment of assets deferred through flexibility required from Ofgem asap | | | | |

**Risk - definition:**
Risk to the DSO's business model and to the DSO related operations (as currently envisaged).
This risk log is out of scope of Pdt 7 and so line items captured here will not be progressed by the team

| Threats to DSO (business model and operations) | | | Stakeholders | | Risk level (H/M/L) | | | Development area | Mitigation Strategy (if it exists) | Timeline | | Post-mitigation risk level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ref.** | **Item** | **Description of Impact** | **Category that has most to gain** | **Category that has most to lose** | **Likelihood** | **Impact** | **When (ED1/ED2)** | **Area of development that may provide more insight or a solution** | **Start description with either Accept - Avoid - Reduce -Transfer** | **First identified when?** | **If closed, describe when and why** | **Describe if and how the mitigation affects the likelihood or the impact** |
| 1 | New customer interactions are required | Customers may not want to engage with new parties and this could restrict liquidity in flexibility markets and reduce the benefits to consumers. | n/a | n/a | L | L | | • Need to ensure that there are multiple avenues for consumers to realise the value of flexibility they are providing to the system<br>• Need to make engagement easy and have a clear incentive | | Dec-18 | | |
| 2 | Flexibility providers may not be available when the DSO needs them | Events result in customers temporarilly withdrawing their normal flexibility, e.g. a storm warning triggering people to top up the charge on their EVs | | | | | | | | | | |
| 3 | Loss of flexibility due to sudden business failure or relocation | | | | | | | | | | | |
| 4 | Little financial return for SO taking on new risk associated with DSO | Network operators revert to asset solutions to provide certainty of meeting outputs. | | | | | | • Regulation recognises the additional risk | | | | |
| 5 | Existing access rights may not be compatible with new market arrangements | Grandfathering principle of existing access rights could create a barrier to more efficient market design. | Those connections with existing access rights. | System operators unable to implement requisite solutions and new DER opportunities restricted. | H | M | | | Transfer - SCR should address as part of work on access | Dec-18 | | |
| 6 | By introducing peer to peer trading interact with underlying physical system? | Risk that peer to peer trading does not respect underlying physical nature of system leading to network congestion and costs for other users. Issue could be particularly acute where peer to peer trading is occurring in local areas that span more than one DNO licence area. | Peer to peer market participants. | Domestic customers relying on system resilience and system operators. | M | M | | •Need to better understand how markets will interact and impact on system operation<br>•Consider how markets could be better harmonised through standard rules and principles | Avoid - current Open Network demonstrator projects and BEIS Flexibility Platform call should trial impact of peer-to-peer on system resilience. | Dec-18 | | |
| 7 | Does proliferation of different markets/platforms become untenable? | If new markets are added alongside existing markets, all required to interface, there is a risk that it all becomes too complex. | Market participants | System operators | M | H | | | Accept - proliferation in markets inevitable. System operators need to deal with this and demonstrate they can interact in requisite manner. Interoperability is addressed in WS1A P1 Flexibility Market Principles. | Dec-18 | | |
| 8 | Who is responsible for cyber security | Some of the biggest risks will be cyber security attacks from behind the meter, outside of the scope of the SOs. Who is ultimately responsible for this? | Disruptors | End consumer | L | H | | | | | | |
| 9 | (Lack of Incentives on Customers to Manage Capacity)<br>Customer inertia and legacy connections / capacity hoarding inhibiting transition to flexibility | Slows the DSO transition and holds back system evolution / efficiency. | 3rd Parties | System Operator, Flexibility Providers, Customers | M/H | H | | | Reduce:<br>- Commercial incentives to release capacity<br>Ofgem's reform to access arrangements may also provide a useful mitigation | Dec-18 | | |
| 10 | (Pass Through of Incentives to the End Customer)<br>Third party pass-through of ToU prices and incentives to customers | Loss of behavioural incentives on customers which may inhibit the desired responses and lead to higher costs for consumers. Customers not gaining the benefits of improved network constraint management. | 3rd Parties | Customers (Higher costs being passed through) | M | H | | | Reduce:<br>- Regulatory oversight likely to be required to ensure that network price signals and incentives are passed through to consumers | Dec-18 | | |
| 11 | Changes to system needs driving contract "regret" with low utilisation of contracted service assets | Consumers could become locked into paying the costs of flexibility contracts to DER which are not needed by system operators. | 3rd Parties/ Flexibility Providers | Customers (not benefitting from lowest cost solutions) | L | M | | - We are entering a phase of trial and error for this emerging market; WS1A looking at contractual terms to minimise this<br>- Through experience and Innovation projects, DNOs should sharpen their procurement and system operation skills<br>- Changes in system needs to be visible and accessible | Reduce:<br>- Consider the length of flexibility contracts and the split between utilisation and availability payments | Dec-18 | | |
| 12 | Incumbent power e.g. existing funded assets, existing connections, largest voices, market expertise | System operators are used to running the network in a certain way. This increases the risk of persisting with the status quo. | Incumbents, System Operators, Generators | Flexibility Providers, Customers | H | H | | - Workstream 1A looking at market principles and procurement | Reduce:<br>- Stakeholder engagement through market framework definition | Dec-18 | | |

| Threats to DSO (business model and operations) | | | Stakeholders | | Risk level (H/M/L) | | | Development area | Mitigation Strategy (if it exists) | Timeline | | Post-mitigation risk level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ref.** | **Item** | **Description of Impact** | **Category that has most to gain** | **Category that has most to lose** | **Likelihood** | **Impact** | **When (ED1/ED2)** | **Area of development that may provide more insight or a solution** | **Start description with either Accept - Avoid - Reduce -Transfer** | **First identified when?** | **If closed, describe when and why** | **Describe if and how the mitigation affects the likelihood or the impact** |
| 13 | Insufficient value in services to stimulate the market | The cost of the low-carbon transition could increase if networks need to rely more on asset solutions. Risk of spending time and resources developing flexibility markets which do not deliver benefits. | n/a | n/a | L | L | | n/a | - Shared responsibility and wide range of initiative to stimulate the market (DNO innovation, BEIS funding)<br>- The RIIO regulatory regime incentivises DNOs to find lower-cost ways of meeting the required outputs, and to the extent they do – they share the benefits with the customers. These incentives have proved very effective in the past – and there is every reason to expect them to apply to the use of flexible market solutions as an alternative to traditional network reinforcement. If any company is slow to capture these opportunities, their performance is compared directly with their competitors in the sector and their price control settlement factors in the greater efficiency demonstrated by others. | Dec-18 | | |
| 14 | Lack of clarity on future market design and arrangements delays or prevents investment | Network investments may be delayed while there is uncertainty on future flexibility available.<br>Flexibility providers may be held back in developing business models because there is uncertainty of value.<br>Technology providers may not be making investments in R&D. | | | H | M | | • Network companies can provide a sense of direction and list future products and services<br>• Strategic plan on market design<br>• Reforms to industry governance to speed up decisions | | | open | |
| 15 | Uncertain response to price signals | SOs do not know how much they need to over procure flexibility in order to get the response required. | Parties providing services | End consumer | H | H | | | | | open | |
| 16 | Transparency of Opex/Capex investment decision making and the ability of DSOs to take risks in determining the right solution | Risk of inefficient investments due to not giving flexibility solutions full consideration. | | | | H | | •Transparency of how decision are made in the planning process e.g. the NOA process<br>•Network operators should publish their methodology, inputs and outputs<br>•Ofgem needs to set the requirements on the process | | | | |
| 17 | DNO ability to step in and interrupt the market in a "control-led" way when network thresholds are breached | Risk of inefficient “market override” actions due to overly risk-averse practices. May lead to consumers not receiving the full value for flexibility used in these ‘override’ situations. | | End consumer | H | H | | •A market first / last resort mentality should be adopted<br>•Visibility of decision-making hierarchy and reporting<br>•Clear thresholds and rules published in advance<br>•Compensation for curtailment<br>•Commercial incentives to release capacity | | | | |