High Level Scenarios

To be assessed	Score	Summary
High emphasis on auctions/trading: *Access products are well-defined (including being financially firm) and purchased via auctions, with scope for re-sale. Charging models still used to set robust reserve prices, with potential changes needed to ensure they reflect differential value of access adequately.*	Scores not all entered	
High emphasis on access right choices: *Access rights are granted broadly on a first come first served basis, with a range of choice around type of access to maximise use of capacity. Capacity charges reflect impact of different choices on network costs. Changes so that non-firm holders can trade curtailment obligations through a market-based mechanism.*	Scores not all entered	
High emphasis on better usage charges: *Limited changes to access, with reliance on usage charges, with most charges focused on usage at system peaks. Could include more locational charging for constraint costs.*	Scores not all entered	

Effective Competition: 2 - Optimise Capacity Allocation

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading	- **Larger users** - potential to optimise allocation of scarce capacity (i.e. behind a constraint). - A large body of aggregators, offtakers and suppliers could compete to create portfolios and optimise capacity allocation.	-There is no fixed network capacity to allocate - Available network capacity depends on the mix of users. -Interaction with Capacity Market and Balancing Services might make cheapest flexible resources more expensive. -**Generators** - risk of 'pricing out' of the market for smaller players, so may not optimise in terms of finding most efficient, but rather find those with deepest pockets -**Smaller users** - little or no benefit; will be so reliant on assumptions made by intermediaries with the need for safeguards to avoid undesirable consequences for auction losers. - Auctioning capacity has many issues; it is unclear how an auction mechanism involving individual parties could optimise capacity	
High emphasis on access right choices	- **Larger users** - potential for a significant improvement to capacity allocation by offering a greater range of products as standard (e.g. time restricted off-peak 'budget' access products) - **Smaller users** - potential for some benefit for users wanting 'premium' products (e.g. the ability to charge EV at peak time) - **Generators** - more scope for (flexible) sharing of access rights between non-coincident generation technologies - Depending on which access products are created, this does have the potential to effectively allocate capacity	- **Smaller users** - likely to be reliant on significant assumptions on the behaviour of each end user. For a disengaged user this could simply be a more administratively involved means of maintaining the status quo. - **Smaller users** - may create a perverse incentive to avoid smart metering and/or avoid informing the network operator what equipment is connected to avoid the need for 'premium' access products and instead rely on assumptions on typical demand	
High emphasis on better usage charges	- No direct impact on capacity allocation, but cost-reflective usage charges have the potential to impact the way in which existing capacity is used - Predictable pricing signals optimise the dispatch and connection of assets - As a standalone option this may be less effective at allocating capacity, but combined with access products this could be effective	- TOU price signals may conflict with other short-term mechanisms to allocate capacity such as Balancing Mechanism (BM). Application of both TOU and BM price signals for the same network may be incompatible, however, conflict may be avoided if users only face one or the other, instead of both. However, under the BM, users set their own price, therefore any price dispatched under the BM is reflective of that user's value, which includes costs for network use and access. - No improvement on the 'implicit' sharing of capacity which exists under the status quo	

Effective Competition: 4 - Provide a level playing field for all network users

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading	- If auctions are market wide (a big if!), all users are competing for equivalent products, so a level playing field would be created. - Supplier may be able to offer cheaper fixed rate tariffs by buying large blocks of access	- Risk of gaming, e.g. Some participants may be better placed to carry out speculative capacity bids to buy up capacity in order to later sell on secondary market. Equivalent to ticket touts for events. Difficulty of drawing line between 'large' and 'small' for the purpose of smaller user safeguards. - **Smaller users** - Likely to need significant safeguards/'carve-outs' resulting in a distortion of the 'pure' level playing field created by exposing all users to the risk of losing in the auction. - Potential for large users to game the system, and so make smaller users uncompetitive. - Could make Standard Variable Tariffs more expensive as it becomes difficult for suppliers to forecast customer numbers in regions under variable tariffs (cannot purchase access in advance as unknown customer base) - Unlikely to create clear long term signals	
High emphasis on access right choices	- If market wide, all users will be competing for equivalent products, creating a level playing field. - **Larger users** - removes a distortion between users who only wish to use the network at off-peak times (but under current arrangements are required to reserve the capacity they require regardless of when they use it) and users who wish to use the network at peak times. Reserving capacity at peak drives higher network cost than off-peak which could be reflected in the cost differential between access products	- **Smaller users** - could be disadvantaged at the expense of larger users who have the resource to engage more effectively and so purchase the access they need whilst smaller users may find it more difficult to differentiate	
High emphasis on better usage charges	- With cost-reflective usage charges, each user will face the same charges (for an equivalent unit of energy, i.e. at the same time and location), creating a level playing field.	- TOU tariffs are easier to avoid, which may cause some distortions and be less fair. - Potential for volatility in charges overly favouring flexible users	

Effective Competition: 5 - Provide effective network user price signals, i.e. price signals which can be reasonably anticipated by a user with sufficient confidence to allow them to take action

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading	- Assuming auction takes place behind a constraint, would provide strong locational cost signals	- Very difficult for users to respond to price signals - Auction clearing prices likely to be highly volatile and difficult to predict, making this a poor investment signal.	
High emphasis on access right choices	- Clear price signals which can be responded to - Users can reserve/change access rights (many years) in advance and have visibility of what the likely charges associated with those access rights will be. This enables users to respond to those price signals when making investment decisions. - Can create clear price signals	- Potential to over-value the provision of access and consequently under-value changes in usage behaviour - Will still be dependent on network modelling so improvements will be required to address perceived flaws in the current approaches	
High emphasis on better usage charges	- Dependent on predictability of pricing - if prices and time periods are predictable, users should be in a position to respond. - Prices could be highly locational and therefore focused on parts of the network that is near to full capacity, providing strong price signals. - Static TOU tariffs can provide predictable prices which give a clear investment signal	- It would be very difficult for users to forecast what their charge at any given time, or total annual charge will be, therefore very difficult to make investment decisions. - Static time of use signals set in advance do not reflect the value or quantity of available capacity at that particular time - So they are an economically inefficient tool for incentivising user responses. - It is essential that charges are highly cost-reflective to avoid inefficiencies, which may result in more volatile signals.	

Effective Competition: 6 - Appropriately allocate risk between individual network users and the wider body of users

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading		- **Smaller users** - if protections are not put in place for smaller users, places disproportionate risk on individuals, of either being exposed to high prices if auction clears at a high price or of losing network access if they (or an intermediary working on their behalf) loses in the auction - **Larger users** - if protections are put in place for smaller users, places disproportionate risk on larger users who could be left to 'divvy-up' remaining capacity after allocation to smaller users - Impact of loss of connection on individual users could be immense - Likely to inefficiently allocate risk	
High emphasis on access right choices	- If users pay a cost reflective price for their access right, then they are paying for a level of network access service from the DNO/TO. It is within the control of the DNO/TO to make decisions regarding network reinforcement which results in higher/lower cost, or degradation of service, so it is right that users are insulated from this risk. - Exposes users to some risk by exposing them to the cost of providing (e.g.) peak time access differentiated from the cost of off-peak access. - Clearly designed products should mean users know what	- Depending on locational granularity, potential for 'premium' access products to become extremely expensive, and potentially over-expose users to the risk of networks becoming congested, where arguably some of this cost should be shared with the wider body of users	
High emphasis on better usage charges	- Lower socialisation (e.g. locationally) arguably allocates risk more appropriately - where user behaviour has the potential to avoid costs users are exposed to strong cost signals; other users are not. - Cost-reflective charges provide the most robust risk allocation	- Dynamic TOU price signals will be volatile by value and also volatile by timing - This exposes users to substantial risk regarding what their total annual network charge is going to be, caused by factors outside of their control. - Prices could be very high in certain time bands - for example if a STOD structure was selected, then could have a high peak price.	

Cost Reflectivity: 3 - Ensure that price signals reflect the incremental future network costs and benefits that can be allocated to and influenced by the actions of network users

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading	- Potential to provide highly locational price signals. - An appropriate reserve price would ensure prices never fell below incremental costs of providing capacity - Higher costs will indicate constraints in a region, and users could respond by investing in new kit or reducing usage	- Auction price will not reflect 'incremental future costs and benefits that can be allocated'; rather it will reflect the willingness to pay of the auction winners - Potential conflict between holding a competitive auction and giving long-term locational signals	
High emphasis on access right choices	- Network charges are a price for receiving a network access service - It is relatively straight forward for network charges to reflect the cost to the DNO/TO of providing the network access service.	- May over-value providing access and under-value ongoing usage - e.g. likely to be a limited ongoing signal of the benefit to the network of using less than the access product purchased - Will remain dependent on the modelling used to price the available products, which needs to be improved to be more cost-reflective	
High emphasis on better usage charges	- Assuming the calculation of charges is done on a sound basis, charges should accurately reflect costs and benefits which can be allocated to the behaviour of certain users. - Sufficient transparency of network conditions and ex post charging allows parties to respond to their pricing signals - Cost-reflective charges inherently achieve this criteria	- Network investment is generally driven by changes in user capacity, not changes in user profile "use" - If a user happens to reduce their "use" at a key time in one particular year (therefore reduces its network charges in that year), this does not necessarily reflect the cost of network the DNO/TO needs to build to serve that user in that, or future years - Static TOU tariffs are not cost reflective - Because the particular periods of constraint, or high stress on the network are driven by weather and outturn market conditions, the specific timing of which can not be known in advance. - Highly cost-reflective charges create risks for some (rural?)	

Developments in Network Businesses: 1 - Efficiently meet the essential service requirements of network users

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading	- From an idealistic standpoint, this option has the potential to improve capacity allocation and so efficiently meet longer term requirements by minimising expenditure. - Portfolio approaches could allow users to share network access over different times by buying together as a group or under a 'neat' supplier portfolio	- Users will be prepared to pay up to the value of their business/project to obtain network access, even then they may fail to secure access. This means businesses (hospitals/schools?) as well as generation assets could close due to failure to secure network access. - **Smaller users** - unlikely to meet essential requirements without significant safeguards - **Larger demand users** - potentially under-values stability; industrial users would not see a regular auction as an efficient means of meeting their requirements which are inherently stable and long term - Due to practical issues with holding an auction, this is unlikely to be an 'efficient' means of meeting essential service requirements	
High emphasis on access right choices	- When users pay a cost reflective price for network access, they should be able to expect their essential service requirements of access will be met. It is then appropriate that in the event that service may not be delivered, the user is compensated for that degradation of their service. - May allow the network operator to effectively allocate capacity based on the access products purchased and so meet long term requirements efficiently - With the right products, this could be an efficient approach	- Given the number of products will be restricted, there is a risk that users purchase access products conservatively (i.e. the option which provides more than they need rather than less) which the network operator must then allow for - leading to unused capacity	
High emphasis on better usage charges	- Potential for user responses to cost signals to reduce long run costs for all network users. - Charging aggregated portfolios allows suppliers to spread costs across all market participants and offset with local solutions (i.e. generation and storage), to ensure essential service needs are met	- The essential requirements of customers who cannot respond to cost signals are likely to be charged more under this option. May leave some customers priced out of the market if prices are very high. - Particular problem for smaller and/or domestic users; users who are less likely to monitor and respond to TOU electricity market pricing may receive shocks to their annual network charge if they consume power at the "wrong" time. - Highly cost-reflective locational charging may disadvantage vulnerable users with low usage, so may require some protections (e.g. minimum usage) to protect vulnerable users.	

Developments in Network Businesses: 7 - Support efficient network development

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading	- **Larger users** - demand in each auction (i.e. the differential between the clearing price and the reserve price, or the number of bidders) will provide network operators with a signal of where additional capacity is needed	- Auctions provide a poor price signal for network investment - DNO/TO may have poor visibility of current and future bid stack, so very difficult for DNO/TO to predict what the impact will be of a given network investment on future auction clearing prices. - Lumpiness of network investment -Will tend to exacerbate the volatility of auction clearing prices - **Smaller users** - safeguards required to ensure user's essential requirements are met are likely to render this option similar to the status quo for information provided to the network operator - Auctions do not provide for strategic planning that is most cost effective	
High emphasis on access right choices	- DNO/TO have good visibility (potentially many years) in advance of what access rights different users are going to request - This enables DNO/TO to effectively plan network investment accordingly - Potential for better use of existing network through better capacity 'sharing' based on time of use. - Alongside information from other sources, planning could be strategic - With the right products, this could be an efficient approach	- Could place incentive on developers to opt for minimum access option, only for network operator to later be required to reinforce to meet the actual needs of users. - May require the network operator to 'guarantee' access to the level of the product purchased, resulting in unnecessary headroom.	
High emphasis on better usage charges	- Evolving cost signals will reflect congestion on the network at each time and location, enabling user responses which avoid the need for reinforcement and improve efficiency. - Emphasises efficient use of the network	- DNO/TO have poor visibility of what the future demands on the network may be. This provides a relatively poor price signal for network reinforcement.	

Efficiency of Implementation: 8 - Be Practical

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading		- Practically very difficult to implement. There is not a single national network capacity, but a myriad of different available capacities. Available capacity will vary by location and by mix of user type. Available capacity in some areas will also depend on the success of users in other areas. Therefore the locational mix of successful users is subjective and indeterminate. - If auctions are more targeted, potentially practicality improves but this introduces level playing field concerns - Would require changes to Capacity Market arrangements to avoid conflict - Too many issues to make this a practical option for demand customers	
High emphasis on access right choices	- **Transmission** - this approach is already closest to existing charging arrangements	- **Smaller users** would require some means of agreeing the level of access with each end user (or an intermediary working on their behalf), requiring a huge number of bilateral agreements - **Larger distribution connected users** would require more detailed connection agreements specifying more detail on the access product purchased, and detailed considerations on the consequences of over-use beyond access product purchased - Would need new planning approach (and software),	
High emphasis on better usage charges	- User will not be required to make up front assumptions on their future use of the network, so more similar to status quo for end users.	- More complicated and burdensome than existing arrangements. TOU tariffs would need to be more dynamic, varying over time and by location at sufficient granularity. This would require a significantly more complicated tariff model and require it to be updated many times per day. - Difficult to send appropriately granular but appropriately stable location and temporal cost signals for the mass market. - Consumers will need education and good information (e.g. in home display) to be able to respond to pricing signals - Requires improved network modelling to ensure charges are	

Efficiency of Implementation: 9 - Be Proportionate

Scenario	Advantages	Disadvantages	Score and summary
High emphasis on auctions/trading		- Auctions fail to address the issue with current arrangements relating to increasing congestion on networks causing a need to provide more efficient price signals to smaller users (inc. EV) , then it is this very group for which auctions are less appropriate and least effective. - Minimal benefits derived from major administrative effort - Too many issues make this disproportionate	
High emphasis on access right choices	- **Transmission** - requires least change and disruption for users - **Larger distirbution connected users** - benefits are potentially significant, with relatively small implementation hurdles	- **Smaller users** - major implementation challenges for minimal benefit	
High emphasis on better usage charges	- Does not require immediate user engagement. - Benefits of charges that reflect the absolute costs that users impose on the network mean the increased complexity is proportionate	- Would introduce substantial additional complexity for both users and network operators, while delivering price signals which are less effective at incentivising economically efficient responses. - Consumers will need education and good information (e.g. in home display) to be able to respond to pricing signals	