UTILITY 2050

Decision Theatre: International Perspectives [Europe]

Empirical Report

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Utility 2050 Decision Theatres: International Perspectives [Europe]

1.0 Introduction to the Utility 2050 project decision theatres.

The utility 2050 project assess the impacts of low-carbon energy futures on electricity utilities, and explores how they can access new markets.

The Utility 2050 project recognises that the energy sector faces uncertainty. There are many possible futures with different generation mixes, flexibility technologies, final demands, consumer preferences, and political priorities. The Utility 2050 project uses innovative interdisciplinary approaches to quantify and explore big questions about future market sizes, regulatory priorities and customer preferences.

This empirical report summarises the output of the decision theatre held on 28th November 2017 at the British Embassy in Berlin. Decision theatres present participants new data on a specific multi-stakeholder problem. In this case the Utility 2050 project, findings were presented (see section 3.1). The information given to participants was used to reach a decision on the following question:

What are the most important CHANGES needed to enable utilities to access new markets in the [UK] *energy transition?*

The rest of this report is structured in four sections. Section 2 summarises the decision theatre method, and the justification for its selection for this study. Section 3 summarises the data given to participants prior to the decision theatre and once again at the start of the workshop. Section 4 describes the decision theatre process and the results of each stage, including the final decision. Section 5 concludes and explains next steps.

2.0 The decision theatre method

Decision Theatres (DTs) are workshops that culminate in participants or stakeholders taking decisions. DTs are one off events often within a longitudinal research process that may involve several DTs, groups of participants, and decision-making dilemmas.

Arizona State University pioneered the use of decision theatres to consider decision-making in a context of climate uncertainty. Their study explored the complex relationships that exist between

rapidly growing populations and finite water supplies[1]. Decision theatre techniques have been used to explore complex issues of resource and infrastructure governance such as local energy infrastructures[2], urban flooding[3], and forestry management[4]. Decision theatres are being used internationally to tackle complex, multi stakeholder issues with cutting edge analytics.

The Utility 2050 decision theatre work package aims to run four separate decision theatres with four groups of energy system decision makers. These are present utilities (both established and new entrants), European stakeholders, North American stakeholders and policy and regulation. The central question and preparatory material will be common to all the decision theatres. This process will generate four sets of prioritised changes to the energy system that are designed to make a breakthrough in UK energy system planning. Results of prior decision theatres will be disclosed to participants at the end their own DT.

The Utility 2050 International Perspectives [Europe] decision theatre comprised 9 participants from the European and international energy market: 2 x executives of established utilities, 2 x international technology company representatives, 2 x energy flexibility SME's, 1 x investment Bank, and 1x energy focussed civil servant of the British Embassy. The stakeholders were chosen to provide insight from across the European energy market, and include businesses with an existing or possible future interest in the UK market. Most of them had involvement in the UK energy market before and hence were able to provide their inputs based on their knowledge on similarities and differences between the UK and their native energy system.

3.0 Preparatory Utility 2050 data

At the beginning of the decision theatre facilitators shared the findings of the Utility 2050 project to date. This information was sent to participants prior to arrival and comprised three datasets from the Utility 2050 project. The data presented to participants is presented in sections 3.1 to 3.3.

3.1 Dataset #1: New financial opportunities 'Value Pools'.

The Utility 2050 project asked what new financial opportunities are presented by future energy systems. These new opportunities were called 'value pools'. The value pools quantified by the research team are either new revenues to the system or avoided costs i.e. through technology switching or efficiencies.

The six value pools we quantified were:

[1] White, D.D., Wutich, A.Y., Larson, K.L. and Lant, T., 2015. Water management decision makers' evaluations of uncertainty in a decision support system: the case of WaterSim in the Decision Theater. *Journal of Environmental Planning and Management*, *58*(4), pp.616-630.

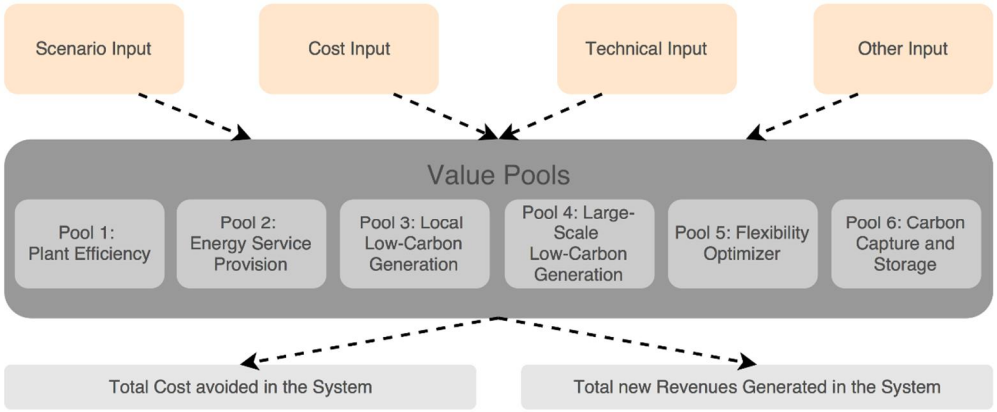
[2] Bush, R.E., Bale, C.S., Powell, M., Gouldson, A., Taylor, P.G. and Gale, W.F., 2017. The role of intermediaries in low carbon transitions–Empowering innovations to unlock district heating in the UK. *Journal of Cleaner Production*, *148*, pp.137-147.

[3] Walsh, C.L., Glendinning, S., Dawson, R.J., England, K., Martin, M., Watkins, C.L., Wilson, R., McLoughlin, A., Glenis, V., Parker, D., 2013. Collaborative platform to facilitate engineering decision-making. Proc. ICE Eng. Sustain. 166, 98e107.

[4] Boukherroub, T., D'Amours, S. and Rönnqvist, M., 2016. Decision theaters: a creative approach for participatory planning in the forest sector. In *Proceedings of the 6th International Conference on Information Systems, Logistics and Supply Chain (ILS'2016), Bordeaux*.

- VP#1: Plant efficiency, the easiest avoided cost to understand, simply what can be saved by investing in the existing generation portfolio to make it more efficient over time.
- VP#2: Energy services, this value pool includes all new revenues available by installing energy efficient appliances and management systems in homes as well as electric vehicle charge kit *and* new revenues from the extra electricity needed to charge electric vehicles.
- VP#3: Local low carbon (distributed) generation. Essentially the market for microgeneration, this is where utilities companies offer solar lease and servicing along with offering trading or brokerage platforms for local generators.
- VP#4: Large scale low carbon generation. This value pool is an 'avoided cost' value pool because, depending on carbon prices and fuel prices, low-carbon generation should become cost competitive with gas CCGT in the future. Therefore, with the right carbon price, companies would choose to build low carbon as opposed to traditional generation to cover the same net capacity. This value pool is calculated without feed in tariff subsidies.
- VP#5: Flexibility, the value of battery storage and demand response can be both new revenues or avoided costs, this value pool captures price arbitrage and the provision of energy services to the transmission system operator.
- VP#6: Carbon Capture and Storage, estimates the costs avoided by building CCS plant under a range of carbon prices.

Figure 1: Value pools identified and conceptual model map.



To test the values pools, we selected eight UK future energy scenarios. These were:

Author	Name of the Scenario
DECC – 2050 Calculator (2010/2011)	High Renewables, higher Energy Efficiency Higher Nuclear, less Energy Efficiency Higher CCS, more Bioenergy
National Grid (2016)	Gone Green No Progression
Realising Energy Transition Pathways (2008)	Market Rules Central Coordination Thousand Flowers

The results show that in 2050, depending on the scenario assessed some value pools are very robust, some are volatile, and some are destroyed completely. Across the scenarios tested these new revenues and avoided costs were compared against the size of the entire market. Figure 4 shows that new revenues

and avoided costs combined are a maximum of 31% and a minimum of 14% of the future market size across the scenarios. Across the surveyed scenarios, the potential new revenues in the UK energy system are up to £12.8bn per year in 2050. The cost savings potential is up to £9.7bn per year in 2050.

Figure 2: Cumulative new revenues across system futures in 2050 by value pool

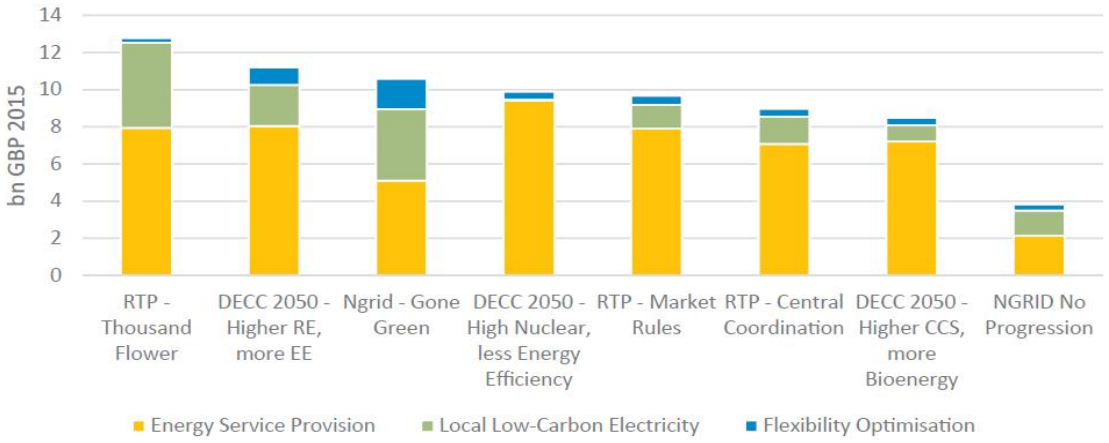


Fig. 15. Cumulative new revenues across system futures in 2050 by value pool.

Figure 3: Cumulative avoided costs across system futures in 2050 by value pool

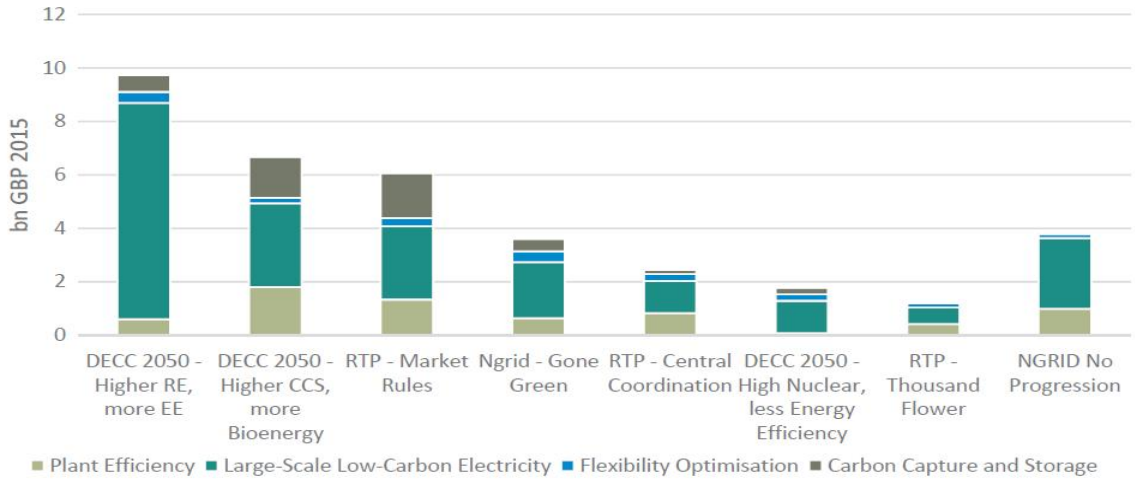
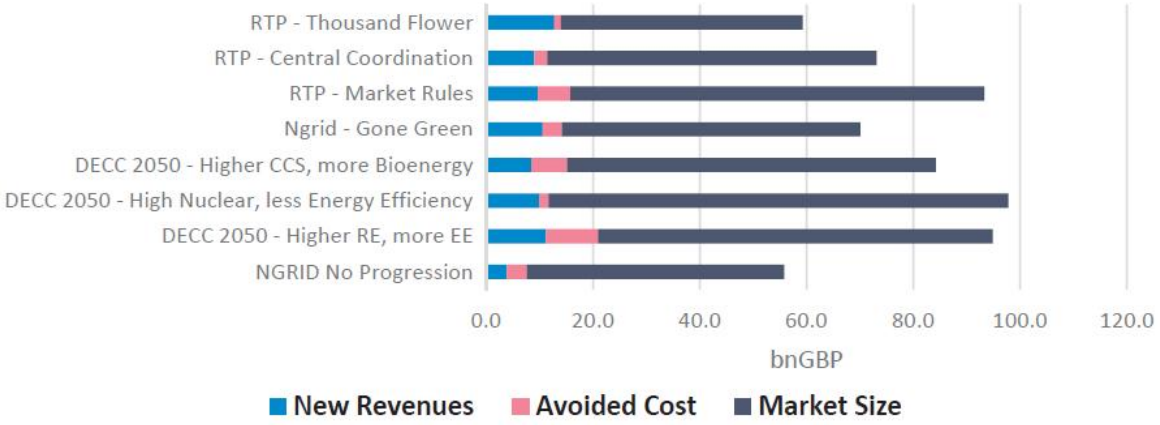


Figure 4: Comparison of indicative market size against new revenues and avoided costs in 2050.



The main insights from this work are summarised below, specific questions were encouraged from participants during the decision theatre. Each insight is accompanied by a 'provocation' which led into activity #1 of the decision theatre.

1. The cost of carbon in the UK's carbon price floor is critical to both CCS and large scale low carbon generation value pools. We used the Committee on Climate Change's expected carbon prices. Without direct subsidy the main driver for firms to construct large scale low carbon generation (VP#4) are the cost differentials between these and conventional technologies. Across the scenarios analysed the carbon price only reaches a sufficiently high value to make these value pools positive in 2050. These points support previous analysis in suggesting that linked long term subsidy contracts of low carbon generation alongside carbon pricing will continue to be necessary to deliver required levels of large scale low carbon generation. However, this analysis demonstrates carbon capture and storage is extremely sensitive to what future energy scenario is followed. This raises Provocation #1: Will anyone really invest in CCS when it is such a volatile value pool?

2. The energy service provision value pool is robust across all scenarios, and the dominant driver of new revenue is the electric vehicle service element. Across all climate compatible scenarios there is a substantial commercial opportunity available in electric vehicle service provision. Indeed electric vehicle services are the single biggest element of new revenues available across all assessed future energy scenarios including 'no-progression'. This prompts Provocation #2: Utilities can capture lots of value from electric vehicles so they will lead the way on promoting them.

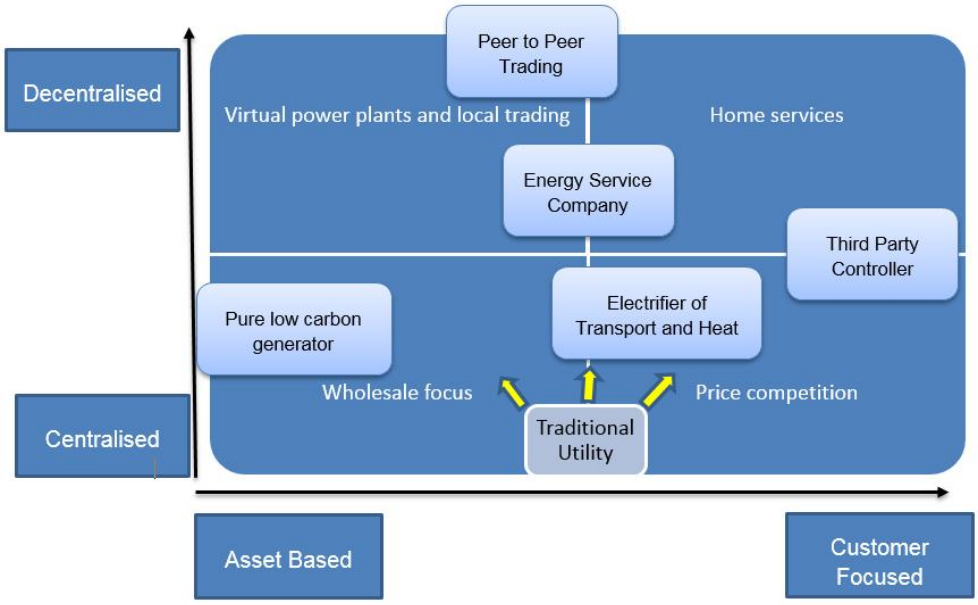
3. Revenues and avoided costs from flexibility markets (i.e. batteries and demand response) are extremely volatile across scenarios. Through the operation of battery storage technologies new revenue streams in the range of 46–565 mGBP in 2030, and 46–1040 mGBP in 2040 and 2050 can be accessed in the power and balancing market. Power firms can potentially generate new revenues from DSR in the balancing market between 160–390 mGBP in 2030, 190–550 MGBP in 2040 and 210–610 mGBP in 2050. While at the same time DSR can avoid wholesale cost in the order of 115–270 mGBP in 2030, 140–375 mGBP in 2040 and 150–410 mGBP in 2050. Despite this volatility, storage, demand response, and flexibility are key enablers in other parts of the energy market. Provocation #3: Flexibility value is so volatile only small start-ups will bother with it and it will never reach the scale needed.

4. In the National Grid Gone Green and RTP Thousand Flowers scenarios the combined value pool #3 for distributed generation is £3.8 and 4.5bn in 2050, where in those scenarios with more centralised generation the value pool is often below £1bn by 2050 or in some does not exist at all. This value pool envisages utilities leasing consumers' microgeneration equipment (largely solar) and providing local power exchanges for trading. Provocation 4 is: Distributed energy and electricity utilities will always be in competition because large utilities won't pursue this value pool.

3.2 Dataset #2: Business model innovation

In summer 2016 the Utility 2050 team ran a workshop on the utility business models of the future. The 5 business models proposed were: low carbon generation only businesses focussed on building low carbon capacity and/or CCS, a 'New Electrifier' which installed electric heating and electric vehicle charge provision, Energy Service Companies offering appliances, efficiency retrofit and electric vehicle services, peer to peer trading platforms for local generation, and 'Third Party Control' which essentially bundles utilities around consumer needs and takes switching decisions on the consumers behalf. These business models were placed on the following matrix:

Figure 5: business model market positions.



Adapted from: White, N., Ingham, K., von Bechtolsheim, D. M., Haischer, M. & Francis, D. R. (2013) *The future of energy utilities - How utilities can survive the "perfect Storm".* Arthur D. Little.

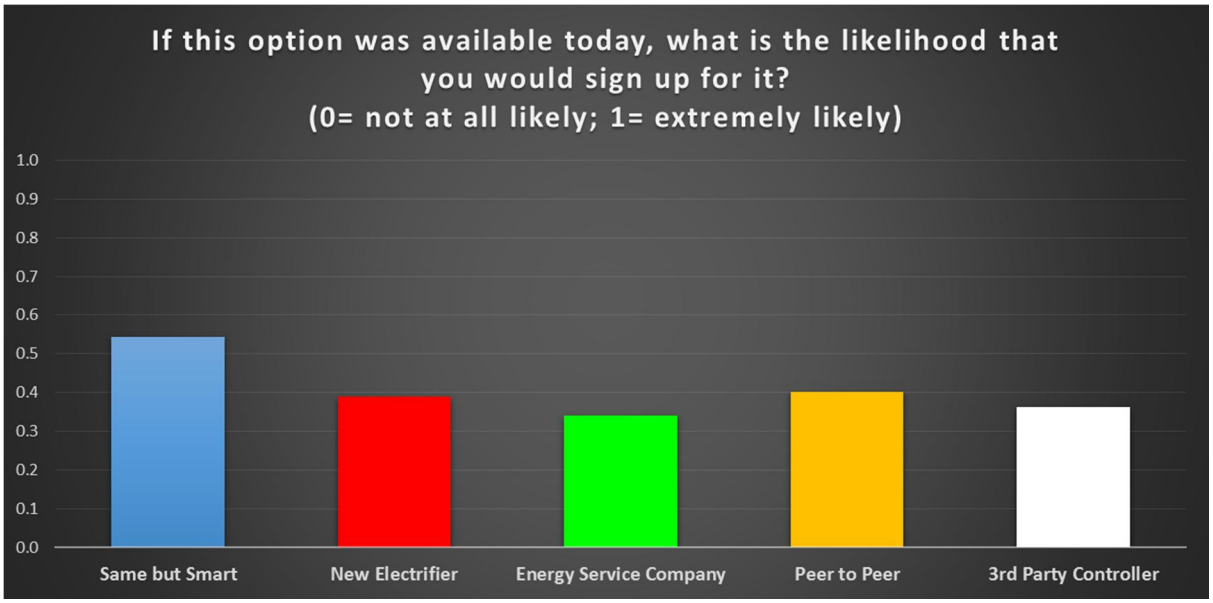
Each of the business models can capture one or more of the value pools proposed above. The intricacies of each business model were not presented at length but DT participants were asked to use them as ways of understanding how utilities might capture new value pools. The provocations which came from this analysis are:

- Provocation #5: Regulation gets in the way of business model innovation
- Provocation #6: Some business models just too risky for the levels of return in the sector
- Provocation #7: Some business models are technically possible but just too complex to understand

3.3 Dataset #3: Consumer Insight

Business model innovation will only turn 'value pools' into revenue if consumers want what is being sold. The Utility 2050 team undertook a consumer facing survey. We presented key attributes of the business models we generated to a representative sample n=2000+ of UK energy bill payers and asked which of the business models they found attractive. The attributes and results are shown in figure 6 below:

Figure 6: Spread of preferences in comparative choice exercise



We expected consumers would want business models closer to what they are familiar with. However the Peer to Peer Trading (which means more control and engagement) and the Third Party Controller (which means giving up both control and data access) models scored very well. This suggests consumers are happy to give up data and have more or less control in return for some benefit (financial or lifestyle). There was no 'total loss' business model i.e. all BMs were attractive to one market segment. This means consumers may be more segmented than we think. The provocations we can draw from this are:

- Provocation #8: Consumers are more engaged than we think when given meaningful choices.
- Provocation #9: Consumers are not as engaged as they say and any business model based on deep engagement is bound to fail.

The nine provocations provided by the facilitators were:

- *Provocation #1: Will anyone really invest in CCS when it is such a volatile value pool?*
- *Provocation #2: Utilities can capture lots of value from electric vehicles so they will lead the way on promoting them.*
- *Provocation #3: Flexibility value is so volatile only small start-ups will bother with it and it will never reach the scale needed.*
- *Provocation #4 is: Distributed energy and electricity utilities will always be in competition because large utilities won't pursue this value pool.*
- *Provocation #5: Regulation gets in the way of business model innovation.*
- *Provocation #6: Some business models just too risky for the levels of return in the sector.*
- *Provocation #7: Some business models are technically possible but just too complex to understand.*
- *Provocation #8: Consumers are more engaged than we think when given meaningful choices.*
- *Provocation #9: Consumers are not as engaged as they say and any business model based on deep engagement is bound to fail.*

4.0 Decision theatre results.

Stage 1 was designed to facilitate discussion whereby further provocations identified by the attendees simply in order to generate discussion around the aims of the DT. Those generated by the International Perspectives [Europe] attendees were:

- In non-subsidy energy only markets, investments in new technologies is not possible
- To create the best value for people, politicians and regulators should stop micromanaging energy markets
- The future energy space will look completely different from today's one, with new players and value chains
- Customers will be much more diverse than today, i.e. from different segments.
- Costs to consumers for energy will never fall owing to inevitable increases in wholesale power prices and energy innovation.
- The existing capacity/generation is not being fully utilised which is adding cost to all consumers. (Incl BTM gen)
- There are too many layers and complexity. The whole energy system needs a reform to target simplification.
- Local community energy/utility providers will take a significant share of basic supply for new suburban or rural developments with aggregation services & virtual power plants providing flexible and stable price contracts.
- Companies/Utilities that are able to service for values of consumers when providing electricity will dominate the market.
- There are too many actors in the energy sector to deliver meaningful, long term, strategic changes that deliver security of supply and environmental benefits.
- The evolution of the energy market is becoming increasingly complex and therefore too many actors to deliver the change needed.

This discussion phase of the decision theatre is designed to allow participants to adopt a 'system' mind-set and pay attention to long term trends rather than the current moment of energy policy. Clearly there are too many issues to cover from the list of provocations generated, however there are clear common themes of

- increasing complexity,
- a move to service based business models, and
- the need for future flexibility

which were picked up and developed in the next exercise.

The following four stages, [2-5] comprised the active stage of the decision theatre.

Stage 2 – Playing god/system architect

In stage 2 participants were asked to take account of the data presented and the provocations made, and adopt the role of a powerful 'system architect' to 'play god' and decide what changes they would make to the system so that new financial opportunities could be exploited and low carbon energy futures be delivered. Participants were asked to 'think big' to 'not be constrained by the current system' and to individually prepare 3 specific changes needed in one to three sentences explanations recorded on A5 report cards.

The changes proposed by individuals are presented below in no particular order with a short explanatory summary. Some changes are grouped where they share an outcome or theme. There were 37 original individual propositions, which after grouping by theme became 15 propositions agreed by the group to go into the prioritisation exercise. The suggestions at this stage are not giving balanced recommendations, rather they are answering what would be necessary to allow the value pools presented above to be captured. The change proposals were:

- Have a clear digital agenda that allows innovation
- Remove supply license barriers to allow more entrants with new business models into the market.
- Push decarbonisation of heat and transport by ambitious goals and incentives e.g. housing insulation rules and support.
- Re-introduce subsidies for onshore wind to a certain extent.
- Deliver "Gone Green" scenario, policy and regulatory clarity and stability for greater investment confidence (covering other sectors such as transport).
- Allow customers to be exposed to price risk. Trust the ability of people to make choices – don't try and make choices for them. Make all components of electricity costs flexible and time dependent.
- Create full integration of EU Energy market. Create a true European energy market that allows making best use of local energy sources and distributed generation. Further developing the grid in order to avoid curtailment and use portfolio effects of distributed renewables.
- Government decision to invest in core energy infrastructure to facilitate decentralised energy generation, EVs, and Heat [electrification/networks]
- Enable a transparent system with a view to building trust. Enforce transparency of information, in terms of profits, from utilities to improve the lack of trust towards the big 6.

- Results driven regulation and policy. Have a pro-active regulator that allows trying out new things and have them remunerated.
- Make sure total cost of lifetime for assets are taken in to account by businesses. A cradle-to-grave decision approach
- Remove all subsidies related to energy to enable best business model to win. Make the UK energy market "investable" again by stopping interventions. Let the competitive market decide on the best outcome.
- Support of/access to contracts/incentives for low cost renewable generation deployment
- Allow renewables to enter the capacity market (Dieter Helm energy cost review) to allow for all forms of generation to compete on a level playing field. If not the capacity market then another form of subsidy.
- Better control of transmission and distribution charges to allow improved value for money.

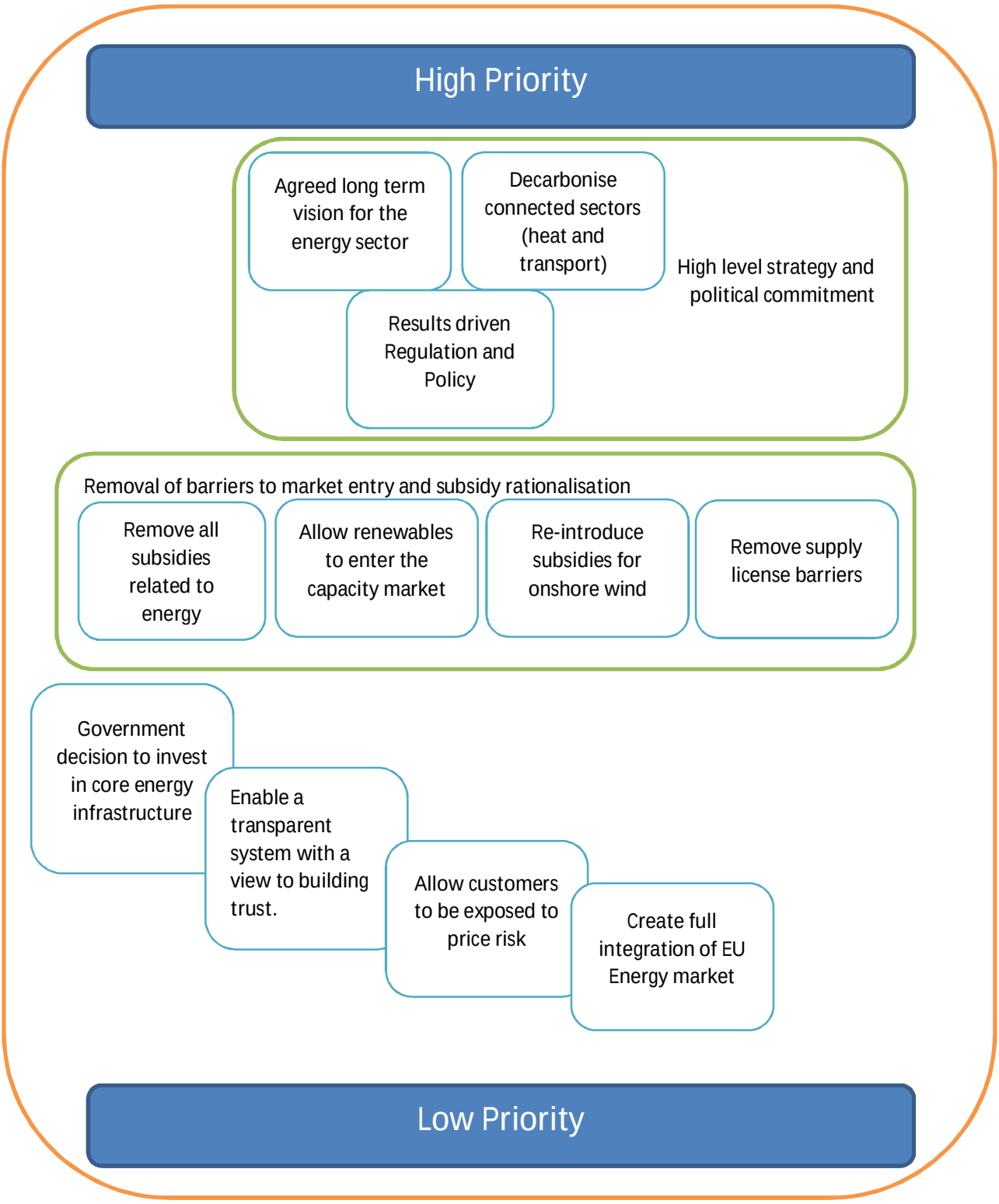
Stage 3 - prioritise the changes

Stage 3 asked participants to work together with the change proposals listed above. Participants were asked to order the change proposal by priority, still remaining within the mind-set of what would be ideal from their perspective if they were 'in charge' of the system and wanted to access the value pools identified. This was a timed exercise and the group was given guidance by facilitators where necessary, but otherwise given freedom in how to order change proposals by priority. Importantly the group was asked to seek 'consent not consensus' i.e. not all participants needed to agree, but had to reach a prioritisation of proposals within the timed session, with which they could agree to move forward with. The prioritisation consented to is shown in figure 7.

Stage 3 observations:

There was a clear tension between the economic logics being deployed by various stakeholders. There was no clear split in the room over the desirability or otherwise of different subsidy approaches, but there was a protracted discussion about what a subsidy free system could look like and what that would mean for investment and planning. The split between the various economic rationales involved in justifying subsidy support or capacity contracts was not explicit. The spectrum of opinion is shown by the various free market proposals *"Remove all subsidies related to energy… Let the competitive market decide on the best outcome", "Allow customers to be exposed to price risk",* mixed approaches to managing *markets "support of/access to contracts/incentives for low cost renewable generation deployment", "Allow renewables to enter the capacity market"* and more clearly interventionist or state control suggestions: *"Re-introduce subsidies for onshore wind to a certain extent." "Deliver "Gone Green" scenario, policy and regulatory clarity and stability for greater investment confidence."* And *"Government decision to invest in core energy infrastructure".* This discussion, on the role of the state in setting market signals for investment was clearly the strongest theme from this decision international perspectives [Europe] decision theatre. This is particularly so in comparison to the two UK based decision theatres, though comparative analysis is beyond the scope of this empirical report.

Figure 7: Prioritisation of stage 3 change proposals.



There was very little discussion of the role of the consumer in choosing new business models. Though the one proposal for consumers to be exposed to price risk was a collation of two proposals: *"Trust the ability of people to make choices – don't try and make choices for them. Make all components of electricity costs flexible and time dependent."*

There was very little discussion over the operation or side effects of allowing different consumer propositions to operate in the marketplace. The group also chose not to debate at length the cross system propositions which included other sectors in a single contact such as telecoms.

Finally, a unique feature of this decision theatre was the degree to which the group combined and re-combined the change propositions by theme. This consisted of physically separating and re-grouping the A5 cards on which change proposals were written. This process took the initial 15 change propositions, which themselves were an amalgam by theme of the initial 37 propositions, broke them down again by theme, and re-combined them into 11 change proposals which were then prioritised as shown in figure 7. While this facilitated the task of the group, i.e. to arrive at concrete changes needed in the UK energy sector, it rendered the facilitators unable to track the individual reasons for re-combination. The facilitators were however able to identify two 'themes' also represented by green boxes in figure 7. The first being related to the construction of a long term political settlement around energy transitions

Stage 4 took the prioritised list of 'system architect' changes and asked the European DT stakeholders to consider the other communities involved in delivering the UK energy transition, namely present utilities, investors, and consumers. This exercise aimed to take a list of actions entirely aimed at allowing utilities to access new financial value pools and reflect them against the known constraints of markets, consumers, energy politics, and the goals of system regulation. This was also a timed 'consent not consensus' exercise. The agreed re-prioritisation aims for a rationalisation of change proposals, a clearer division between consumer, regulatory, and strategic concerns and a removal of the 'middle ground' proposals, ending in a clearer set of priorities.

In common with the UK Policy and Regulatory decision theatre the International Perspectives [Europe] decision theatre participants had intuitively incorporated the views of other stakeholders in stage 3 prioritisation. Two issues that had been raised in the provocation stage of this decision theatre, and by previous UK decision theatres, namely consumer protection and digital/data protection, were suggested by the facilitators as potential drivers for re-prioritisation, however the group stuck with its initial priorities identified in figure 7. This meant that the re-prioritisation exercise was short lived, the participants felt little needed to change proposals. In other decision theatres a further figure has been produced to show how priorities change when other stakeholders interests are discussed, this was not necessary in this case.

Stage 5 took the re-prioritised list and finalised the decision process by taking the highest priority change proposals and re-writing these as concrete actions that could be undertaken by different system stakeholders. This final stage was introduced by facilitators by explaining that these were the changes that the research team would take to future decision theatres with other system stakeholders in the Utility 2050 project, and would form the main empirical product of the International Perspectives [Europe] decision theatre.

In the International Perspectives [Europe] decision theatre this process ran in two stages by the direction of the participant group. These were proposal rationalisation and change presentation.

The proposal rationalisation phase saw many of the original change proposals re-worded and combined. A clear theme was around the need to amend the subsidy payments, capacity markets, and carbon prices at work in the system. Many of the proposals around these price supports for low

carbon generation were combined. This was on top of the existing combination of price support/vs free market approached to generation incentive that formed the change proposals in figure 7. Similarly, there was a strong theme of a lack of coherent political direction in the UK energy system. These were combined into fewer discrete proposals. There was further discussion about which needed to come first, which was the highest priority between setting political strategy and having the appropriate institutions to deliver it. The final activity undertaken by participants was to take the combined issues identified and craft concrete change proposals that went beyond problem identification. Following this process of attrition the group settled on five change priorities. In contrast to other decision theatres these are presented in order of priority. The change proposals in order of priority were*:

> " COMMIT TO A NATIONAL ENERGY VISION FOR 2050 INCLUDING TRANSPORT AND HEAT"
>
> Utility 2050 International Perspectives [Europe] Decision Theatre, Berlin 2017

> "CREATE A DEMOCRATICALLY ELECTED DECISION BOARD THAT HAS FULL CONTROL ON ENERGY REGULATION WHICH CAN BE HELD RESPONSIBLE"
>
> Utility 2050 International Perspectives [Europe] Decision Theatre, Berlin 2017

> "MANDATE THE ENERGY REGULATOR TO FACILITATE INNOVATION AND DECARBONISATION IN LINE WITH 2050 VISION"
>
> Utility 2050 International Perspectives [Europe] Decision Theatre, Berlin 2017

"DECIDE AND COMMUNICATE, ARE WE GOING FOR LOW CARBON CAPACITY MARKETS OR ENERGY ONLY MARKETS WITH A SUFFICIENT CARBON PRICE"

Utility 2050 International Perspectives [Europe] Decision Theatre, Berlin 2017

GOVERNMENT TO COMMIT TO FUNDING FOUNDATIONAL INFRASTRUCTURE TO ENABLE DECARBONISATION OF TRANSPORT "

Utility 2050 International Perspectives [Europe] Decision Theatre, Berlin 2017

*One further change priority was discussed, to "enable flexibility services on an open platform" At this stage in the decision theatre time had almost run out. This is included here because it was an amalgam of several prior proposals, had some agreement in the room but was unable to be fully discussed in the time remaining. It is worth noting however that this was a high priority for the two preceding UK decision theatres.

5.0 Summary and next steps

This is an empirical report and as such does not conduct analysis or draw conclusions.

Section 1 of this report introduced the decision theatre framing and the Utility 2050 project. Section 2 presented the data produced for decision theatre participants. Section 3 summarised the decision theatre method. Section 4 detailed the results of the five stage decision theatre process and the distillation of the four most important changes needed to enable utilities to access new markets in the energy transition.

The next step for the utility 2050 project is to undertake one final decision theatre for international actors [North America] and produce a similar empirical report before undertaking analytical synthesis. The aim of the subsequent synthesis will be to produce a set of priorities around which UK electricity system stakeholders can find common ground advancing the low carbon agenda. These proposals will then be used by the Utility 2050 team in final dissemination to UK energy policy-makers, both current and future.

Appendix A: Consent to take part in Utility 2050 research [example for reporting purposes only]

UNIVERSITY OF LEEDS

	Add your initials next to the statements you agree with
I confirm that I have read and understand the information sheet/ letter dated 16th May 2017 explaining the above research project and I have had the opportunity to ask questions about the project.	
I agree for the data collected from me to be stored and used in relevant future research in an anonymised form.	
I understand that relevant sections of the data collected during the study, may be looked at by auditors from the University of Leeds or from regulatory authorities where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.	
I agree to take part in the above research project and will inform the lead researcher should my contact details change during the project and, if necessary, afterwards.	

Name of participant	
Participant's signature	
Date	
Name of lead researcher	
Signature	
Date*	

*To be signed and dated in the presence of the participant.