Today AFRY will be addressing Work Package 2 questions

**WP1: Key Design Questions**

- **TO involvement:**
  - What are the key considerations for treatment of the TO assets?
  - What is the role of the TO in the LT market?\(^1\)

- **Eligibility rules:**
  - Can existing capability enter the LT market?\(^1\)
  - How do we enforce the selective eligibility for the ST market? Open to all providers? Are there unintended consequences?\(^1\)

**WP2: Further Eligibility and Contract Design Questions**

- **Further analysis on network assets:**
  - How is depreciation of TO assets assessed in a competitive market?
  - What are the participation routes and business cases for OFTOs and Interconnectors?
  - What are the eligibility rules for expired RAB assets?

- **Contract structure:**
  - How long should LT market contracts be?\(^2\)
  - What contract resolution should we choose for the ST market?\(^2\)
  - What provision should be made for contract extensions?\(^2\)
  - Should we have a utilisation payment for the services in the LT and/or ST markets?\(^2\)

- **Selective characteristics:**
  - How do we define incremental investment?

**WP3: Procurement Strategy**

- **3a: Procurement Design**
  - What are the stacking rules for stability contracts?
  - What arrangements could be employed to mitigate market power in the ST market?

- **3b: Procurement Process**
  - Treatment of TO, price cap backstop, within procurement

**Led by ESO**
- Requirements Setting exam questions

**Led by AFRY**
- What strategy options can ESO pursue?
- Advantages of each procurement strategy?
- What are the risks, magnitude and mitigations for each procurement strategy?
- ESO’s preferred strategy for procurement?

**Led by subconsultant**
- Principles for clearing the market?\(^3\)

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1. Moved from WP2 to WP1; 2. Moved from WP1 to WP2; 3. Not part of original scope | TO: Transmission Owner; LT: Long-Term; ST: Short-Term;
Agenda

1. Background 5
2. Remaining questions of WP2 9
3. Next Steps 32
### Exam Questions from WP2

Remaining question on contract structure and selective characteristics criteria still to be addressed within WP2

<table>
<thead>
<tr>
<th>WP2</th>
<th>Topics</th>
<th>Exam Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Further analysis on network assets</td>
<td>1.a How is depreciation of TO assets assessed in a competitive market?</td>
<td>✓ 1.b What are the participation routes and business cases for OFTOs and Interconnectors?</td>
</tr>
<tr>
<td>2. Contract structure</td>
<td>2.a How long should LT market contracts be?</td>
<td>✓ 2.b What contract resolution should we choose for the ST market?</td>
</tr>
<tr>
<td>3. Selective characteristics</td>
<td>✓ 3.a How do we define incremental investment, incremental capabilities and existing capabilities?</td>
<td></td>
</tr>
</tbody>
</table>

Will be discussed first, as it will influence recommendations for the other remaining questions

TO: Transmission Owner; OFTO: Offshore Transmission Owner; RAB: Regulated Asset Based; LT: Long-Term; ST: Short-Term; SM: Stability Market

Legend: ✓ Answered × Pending

Focus of this meeting
Stability Market envisages LT contracts only for new build plants (and possibly refurbished), while existing ones would access to MT/ST frames

### SKELETON OF STABILITY MARKET DESIGN

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Long Term (Y-4)</th>
<th>Mid Term (Y-1)</th>
<th>Short Term (D-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Procure capacity in advance (LT), to</strong></td>
<td>Procure capacity in advance (MT), to adjust LT procurement in case necessary</td>
<td>Procure capacity to fulfil residual of total requirements for Stability closer to real time (ST)</td>
<td></td>
</tr>
<tr>
<td><strong>fulfil share of total requirements for Stability otherwise likely not to be met at delivery time</strong></td>
<td><strong>Allow MT financing of any existing capability able to provide stability</strong> (e.g. expired PF contracts, enhanced capability¹)</td>
<td><strong>Allow remuneration of marginal costs for providing Stability at 0MW</strong> (proving a change in behaviour)</td>
<td></td>
</tr>
<tr>
<td><strong>Allow financing of new build capacity</strong> (and enhanced capability¹, TBD) <strong>through LT contracts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Timeline

<table>
<thead>
<tr>
<th>Procurement lead time</th>
<th>Long Term (Y-4)</th>
<th>Mid Term (Y-1)</th>
<th>Short Term (D-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Y-4</strong></td>
<td><strong>Y-1</strong></td>
<td><strong>D-1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>10+ y (TBD) (3y or 5y for enhanced capability¹, TBD)</strong></td>
<td><strong>1 y (3y or 5y for enhanced capability¹, TBD)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Product

<table>
<thead>
<tr>
<th>Contract type</th>
<th>Long Term (Y-4)</th>
<th>Mid Term (Y-1)</th>
<th>Short Term (D-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseload availability</td>
<td>Baseload availability</td>
<td>4 h (EFA blocks)</td>
<td></td>
</tr>
<tr>
<td>e.g. 90% availability</td>
<td>e.g. 90% availability</td>
<td>100% availability</td>
<td></td>
</tr>
</tbody>
</table>

### Payment type

<table>
<thead>
<tr>
<th>Payment type</th>
<th>Long Term (Y-4)</th>
<th>Mid Term (Y-1)</th>
<th>Short Term (D-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Availability payment</strong></td>
<td><strong>Availability payment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£/h</td>
<td>£/h</td>
<td>£/MW.s/h (TBC)</td>
<td>£/MW.s/h</td>
</tr>
</tbody>
</table>

### Pricing

<table>
<thead>
<tr>
<th>Pricing</th>
<th>Long Term (Y-4)</th>
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<th>Short Term (D-1)</th>
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<td></td>
<td></td>
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<tr>
<td>£/h</td>
<td>£/h</td>
<td>£/MW.s/h (TBC)</td>
<td>£/MW.s/h</td>
</tr>
</tbody>
</table>

### Incremental investment

1. Existing assets with additional investments to provide incremental Stability | PF: Pathfinder; SP: Settlement Period; LT: Long-Term; MT: Mid-Term; ST: Short-Term

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AFRY

14/03/2023 | COPYRIGHT AFRY AB | NATIONAL GRID ESO STABILITY MARKET: PHASE II – FIRST DISCUSSION ON WP2 REMAINING QUESTIONS
Stability Market will be fully operational over the LT/MT/ST timeframes.

Existing assets can participate to either MT or ST markets according to their risk appetite.

At that time, market rules for enhanced capability should be established (i.e. contract length, procurement period, session).

Expired PF contracts as well as any existing asset able to provide stability can compete for a 1y contract (Y-1 procurement).

Allows the necessary price signal formation for future providers to evaluate investments in Stability.

Industry might be asked to evaluate possible modification of market rules for the enhanced capability category (e.g. contract length – 3 or 5y?; procurement period – Y-1 or Y-4?; session – LT or MT?)

As of today, only Pathfinder contracts available for LT procurement of Stability.

Legend: Market evolving to As of today, not sure which market session to join (LT/MT)

PF: Pathfinder; LT: Long-Term; MT: Mid-Term; ST: Short-Term.
# Agenda

1. Background  
2. Remaining questions of WP2  
3. Next Steps

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>3.a.: Criteria for selective characteristics</td>
<td>10</td>
</tr>
<tr>
<td>2.2</td>
<td>2.a: LT contract length</td>
<td>15</td>
</tr>
<tr>
<td>2.3</td>
<td>2.b: Contract resolution for ST market</td>
<td>18</td>
</tr>
<tr>
<td>2.4</td>
<td>2.c: Provisions for contract extension</td>
<td>23</td>
</tr>
<tr>
<td>2.5</td>
<td>2.d: Utilisation payment</td>
<td>26</td>
</tr>
</tbody>
</table>
## Agenda

1. Background 5

2. Remaining questions of WP2 9
   2.1 3.a.: Criteria for selective characteristics 10
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   2.3 2.b: Contract resolution for ST market 18
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   2.5 2.d: Utilisation payment 26

3. Next Steps 32
During WP 1, selective payment criteria have been recommended, while selective characteristics required further considerations in WP 2.

**OUTCOMES FROM WP 1**

**SELECTION CRITERIA FOR STABILITY**

**Selective characteristics**

Selection criteria are defined by provider status:

- **Incremental investment (in LT market):**
  - All new build plants
  - Significant investment in existing plants to enable or enhance stability provision (TBD)

- **Incremental capability (in MT and ST markets):**
  - Existing capacity e.g. expired Pathfinders
  - Minor investment in existing plants to enable or enhance stability provision (TBD)

- **Existing capability (in ST market):** all other providers not in the first two categories

Selective characteristics take primacy over selective payment

**Selective payment**

According to their status, providers will be selected for payment within ST market if they fulfil:

- **Technical conditions to deliver the service at the relevant time:** operationally, unit needs to have necessary configuration/activation to provide the stability service

- **D-1 indication of intention to meet condition to deliver the service:** eligibility to ST

- **Non synch. generation/storage units**

- **Synch. 0MW units (e.g. synchronous condenser)**

- **ST market preferable procurement route compared to other intraday alternatives:** e.g., evaluate possibility to procure through BM if cheaper

If compliant with the above criteria (and selective characteristics), units can be procured under complementary **procurement strategies** in all market timeframes:

1. Model 3.b 'Option to forego payment': 2. e.g. equipped with clutch, which intend to operate at 0MW unless otherwise instructed | BM: Balancing Market; ST: Short-Term; MT: Mid-Term; LT: Long-Term
QUESTION 3A: GENERAL SELECTIVE CHARACTERISTICS RULES

Enhanced capability will be recommended to participate to either LT or MT markets (TBD), being eligible for intermediate LT-MT contract periods

POSSIBLE PARTICIPATION MODEL FOR ADDITIONAL INVESTMENTS

| Time requirements for additional investments still unknown. First application of MT market would provide more evidences |

<table>
<thead>
<tr>
<th>Long Term (Y-4)</th>
<th>Mid Term (Y-1)</th>
<th>Short Term (D-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incremental investment</strong></td>
<td><strong>Incremental capability</strong></td>
<td><strong>Incremental/ existing capability</strong></td>
</tr>
<tr>
<td>New build dedicated plants</td>
<td>Enhanced capability</td>
<td>Existing plants</td>
</tr>
</tbody>
</table>

**Conditions for eligibility**

- New assets with capability to provide stability
- Only dedicated synch. 0MW, storage and non-synch. gen. units eligible
- Must meet availability requirements
- Existing assets undertaking additional investments to provide incremental stability
- Existing assets able to provide stability (e.g. expired PF contracts, enhanced capability), which meet overall eligibility conditions (below)

- Synch. gen. eligible only if capable to provide 0MW
- All other technologies eligible (except for transmission assets)
- Must meet availability requirements

**Contract lengths**

- 10+ years (TBD)
- 3+ years (TBD)
- 1 year
- 4h - EFA blocks

---

1. e.g. with clutch | PF: Pathfinder

---

3.a How do we define incremental investment, incremental capabilities and existing capabilities?
Opportunistic procurement would allow procurement at D-1 if expected to be cheaper than BM, while shortfall procurement will fulfil the residual need.

ILLUSTRATIVE REPRESENTATION OF SHORTFALL AND OPPORTUNISTIC PROCUREMENTS AT D-1 STAGE

Flow of the procurement process

- Total requirement for stability at D-1 stage
  - Short term market supply
    - Gap between LT/MT and ST (D-1 need to be procured)
    - Total unfulfilled shortfall in ST market
    - Not scheduled - not avail. in BM (i.e. stability not bundled with MW)
    - Not scheduled - avail. in BM
    - Scheduled synch. gen. with MW
  - LT/MT market (already procured)
    - Total shortfall of Stability to be procured at D-1/BM
    - (Expected) scheduled synchronous generators determined to adjust total procurement volumes
  - Distinction by resources available/ not available in BM within remaining ST market supply
  - Scheduling available resources in BM expected to be cheaper than in ST
  - Buying volumes during ST rather than BM, if expected to be cheaper (opportunistic proc.)
  - Buying volumes to meet residual shortfall (shortfall proc.)
  - Remaining ST market supply is rejected as exceeding total requirements and uneconomic

Definitions of procurement strategies

- Shortfall: procuring only the minimum volumes to meet SQSS (after having considered already scheduled synch. gen. units)
  - Principle: buy now before it is too late
- Opportunistic: procuring to minimise costs compared to counterfactual (i.e. avoiding more expensive solutions at later timeframes – e.g. BM vs ST market)
  - Principle: buy when it is cheapest

Legend

- Shortfall procurement
- Opportunistic procurement
QUESTION 3A: FEEDBACK FROM INDUSTRY

Open questions for which feedback from the industry is required

1. To what extent do you agree with the selective characteristics outlined for the LT, MT and ST markets?

2. What kind of refurbishments and enhancements are possible?

3. What is the preferable procurement lead time (e.g. Y-1, Y-4, other) for plant requiring major investment? Considering e.g. technical timing to refurbish existing plants and the magnitude of the investment (any information you can share would be appreciated)

4. What is preferable contract duration (e.g. 3y, 5y) for major refurbishment? Considering e.g. magnitude of the investment, typical financing mechanisms, lifetime of the additional components

LT: Long-Term; MT: Mid-Term; ST: Short-Term

3.a How do we define incremental investment, incremental capabilities and existing capabilities?
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3. Next Steps 32
Options for LT contract length range from following PF methodology to having longer contract lengths based on ESO evaluation of future needs.

1. Treatment of TO assets depreciation has opened the question on LT contract length.
2. The analysis has short-listed 3 feasible depreciation models:
   1. 'The Pathfinder evaluation': total cost of TO counterfactual depreciated over tender period (no RV)
   2. 'Fixed residual value for TOs': ESO assumes a RV, based on expected need/capability of TO assets to provide services after the tender period
   3. 'Pathfinder, but longer contracts': Same as 'The Pathfinder approach', but assessment considers longer tender period

- Based on the short-listed models, three possible design options for LT contract length have been evaluated:
  1. 'The Pathfinder evaluation': contract length remains as per current Pathfinder (i.e. 10y)
  2. 'Fixed residual value for TOs': contract length to be decided (e.g. 10, 15, 20y) based on ESO estimation of future service needs, which will determine the length of contract extensions as well
  3. 'Pathfinder, but longer contracts': longer contracts compared to current Pathfinder (e.g. 15, 20 years)

- Depreciation Model 3 seems to be complicated to approach. ESO would need data from TOs currently able to forecast Stability requirements only on a 10 years basis. Plus, ESO would be making an estimate on future needs >10 years, which could have a significant impact on the market outcomes.
- Contract length depends also on technology lifetime and financing mechanisms, so feedback from industry is important. During Phase 1, industry expressed preference for 10y contracts.

1. Commercial providers may (implicitly) consider a RV within their contract price; 2. e.g. 20 years vs. current 10 years of Pathfinder | TO: Transmission Owner; RV: Residual Value
QUESTION 2A: FEEDBACK FROM INDUSTRY

Open questions for which feedback from the industry is required

1. Are there any limitations in terms of contracts being too long (e.g. 15, 20 years) in the LT market?
2. What is the preference in terms of LT contract duration? What are the relevant underlying criteria (e.g. technical lifetime of the asset, length of financing period)?
## Agenda

1. Background

2. Remaining questions of WP2

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   2.2 2.a: LT contract length
   2.3 2.b: Contract resolution for ST market
   2.4 2.c: Provisions for contract extension
   2.5 2.d: Utilisation payment

3. Next Steps
Recommendation of EFA block (4h) resolution for ST has been based on criteria of low level of overholding and consistency with other ST products.

Possible design options have been considered for ST product resolution:
- ½h
- 1h
- 4h
- 12h (day/night)
- 24h (baseload)

The following criteria have been considered to evaluate the most suitable design option:
1. Acceptable degree of overholding
2. Consistency with other existing ST products

The analysis have been performed based on 2017-2022 historical data (SP granularity) on inertia requirements and procurements.

EFA blocks (4h) is the recommended resolution for ST, having evaluated an acceptable level of overholding, practicality and the consistency with other existing ST products.

Cost assessment of the different procurements could not be performed, due to lack of historical inertia price data at SP granularity.
QUESTION 2B: ANALYSIS RESULTS

1h and 4h blocks would provide relatively low overholding compared to higher resolutions, considering also their historical trends.

Comparison of overholding for different ether blocks

- **Volume**
  - Large difference in avg. overholding between Day&Night/Daily and Hourly/EFA block
  - Low overholding in EFA and Hourly blocks, with EFA overholding only slightly higher than that of hourly

- **Volatility and rate of change**
  - Greater overholding volatility in Day/Night and Daily blocks
  - Accelerating overholding requirement in Day&Night/Daily blocks over time, while slower increase in EFA and Hourly. This indicates a lower future requirement for overholding for EFA/Hourly
QUESTION 2B: FINAL CONSIDERATIONS

EFA blocks (4h) would be the recommended ST resolution for Stability, considering practicality and the coherency with other existing ST products.

ST PRODUCTS PROCURED BY NATIONAL GRID

- **Dynamic Containment**: Following large volume of eligible capacity taking part in auctions, National Grid moved auctions from daily to EFA block resolution.

- **Dynamic Moderation**: Dynamic Moderation takes place in similar auctions to Dynamic Containment, with non-symmetrical procurement and EFA block resolution.

- **Dynamic Regulation**: Dynamic Regulation takes place in similar auctions to Dynamic Containment, with non-symmetrical procurement and EFA block resolution.

- **Firm Frequency Response**: Firm frequency response is already purchased in EFA blocks.

For flexibility, 4 market products are already procured in EFA blocks resolution in ST market.

ESO control room further approves the choice of EFA blocks contracts in ST market.
2. What contract resolution should we choose for the ST market?

Open questions for which feedback from the industry is required:

1. Any criticalities to highlight with regard to using EFA blocks (4h) for ST procurement (e.g. inconsistency with other services offered by the Stability technologies)?
2. Which other products would you be looking to stack Stability provision with in the ST market, so we can evaluate the contract structure in those?
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3. Next Steps 32
Expired PF and Stability contracts could be renewed within the MT market, with prices set through a competitive assessment.

A competitive MT market (which will include expired PF also) will be introduced in a short while with the following purposes:

a. Enable ESO to fulfill Stability requirements before initiating SM
b. Develop necessary price signals for future providers to evaluate investments in Stability
c. Ensure efficient procurement through a competitive assessment

Recommended contract duration of 1y, with Y-1 procurement period

**EVOLUTION OF SELECTIVE CHARACTERISTIC MODEL**

- **Today** (no Stability Markets)
  - Existing Pathfinder contract

- **Short term horizon** (initial Stability Market)
  - Existing plants
  - Enhanced capability

- **Mid term horizon** (fully operational Stability Market)
  - New build dedicated plants
  - Existing plants
  - Enhanced capability

- MT market will open to expired Stability contracts providers as well, at 1y contract duration and Y-1 procurement period

LT: Long-Term; MT: Mid-Term; ST: Short-Term; PF: Pathfinder; SM: Stability Market
QUESTION 2C: FEEDBACK FROM INDUSTRY

Open questions for which feedback from the industry is required

1. Do you note any issues on the recommended option for renewing expired contracts – e.g. once Stability Pathfinders or enduring Stability Market contracts expire?
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3. Next Steps 32
Outcomes from project Phase 1 and feedback from the industry suggested application of the utilisation payment just for LT/MT market units

- Recommendations from Phase 1 have suggested application of availability and utilisation payment for the LT/MT market units, while only availability payment for ST.
  - Rationale was that LT market is likely to attract high-capex/low variable cost providers. Hence, there should be arrangements to manage their energy consumption costs. ST market is likely to attract high availability/variable cost or low availability/variable cost providers with high certainty over utilisation so no explicit UP needed.
  - On utilisation price for LT/MT, industry feedback was split over the application of imbalance or user defined utilisation prices.

Possible design options have been considered for the possible combinations of Availability and Utilisation Payments (the latter called Delivery Payment from now on) over the LT/MT and ST markets.

Feasibility of the proposed design options have been assessed under criteria of:
1. Ease of evaluation
2. Efficiency of dispatch

A list of short-listed models have been proposed.
To select the units effectively delivering stability, ESO will need to determine how (and if) a delivery payment will be defined and at what stage evaluated.
**QUESTION 2D: MODEL OPTIONS FOR PAYMENTS**

Different models could be applied to determine the value of delivery (and availability) payment for LT, MT and ST markets

### LT/MT contract providers

<table>
<thead>
<tr>
<th>Options</th>
<th>Availability Payment (eval. Y-4: LT; Y-1:MT)</th>
<th>Delivery Payment (eval. D-1: LT/MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Only AP (DP embedded)</td>
<td>Bid for ST delivery (ideally reflecting both cost opportunity and energy costs)</td>
</tr>
<tr>
<td></td>
<td>- Bid for LT/MT availability</td>
<td>- Effectively, DP embedded in availability bids during LT/MT auctions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Effectively, AP embedded in delivery bids during ST auctions</td>
</tr>
<tr>
<td>b</td>
<td>AP and fixed DP</td>
<td>Bid for ST availability (ideally reflecting cost opportunity only)</td>
</tr>
<tr>
<td></td>
<td>- Bid for LT/MT availability</td>
<td>- Separate bid at D-1 stage for ST delivery (ideally reflecting energy cost only)</td>
</tr>
<tr>
<td>c</td>
<td>AP and indexed DP</td>
<td>Bid for ST availability (ideally reflecting cost opportunity only)</td>
</tr>
<tr>
<td></td>
<td>- Bid for LT/MT availability</td>
<td>- Separate bid for ST delivery (ideally reflecting energy cost only)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- DP calculated through a formula linked to the actual costs of unit to provide services (e.g. real-time cost of electricity if unit consumes energy to provide stability)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- DP calculated through a formula linked to the actual costs of unit to provide services (e.g. real-time cost of electricity if unit consumes energy to provide stability)</td>
</tr>
</tbody>
</table>

### ST contract providers

<table>
<thead>
<tr>
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<th>Delivery Payment (eval. D-1: ST)</th>
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<tr>
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<td>Only DP (AP embedded)</td>
<td>Bid for ST delivery (ideally reflecting both cost opportunity and energy costs)</td>
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<td></td>
<td>- Bid for ST delivery (ideally reflecting both cost opportunity and energy costs)</td>
<td>- Effectively, AP embedded in delivery bids during ST auctions</td>
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<tr>
<td></td>
<td>- Bid for ST availability (ideally reflecting cost opportunity only)</td>
<td>- Separate bid at D-1 stage for ST delivery (ideally reflecting energy cost only)</td>
</tr>
<tr>
<td>c</td>
<td>AP and pass-through DP</td>
<td>Bid for ST availability (ideally reflecting cost opportunity only)</td>
</tr>
<tr>
<td></td>
<td>- Bid for ST availability (ideally reflecting cost opportunity only)</td>
<td>- DP calculated through a formula linked to the actual costs of unit to provide services (e.g. real-time cost of electricity if unit consumes energy to provide stability)</td>
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</tbody>
</table>

**Notes:**
- AP: Availability Payment; DP: Delivery Payment; ST: Short-Term; MT: Mid-Term; LT: Long-Term
- **2. d Should we have a utilisation payment for the services in the LT and/or ST markets?**
Moving forward from Pathfinder approaches, a two-part bid for AP/DP is recommended to allow efficient dispatch and reduce risks for providers.

### Possible Shortlisted Models for AP/DP Over the Short-Term Horizon (Initial Stability Market)

<table>
<thead>
<tr>
<th>LT/MT Contract Providers</th>
<th>A. Pathfinder Phase 1</th>
<th>B. Pathfinder Phase 2-3</th>
<th>C. Future Stability Market Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Availability Payment</strong></td>
<td>- Single bid (£/SP) – reflecting AP only</td>
<td>- Single bid (£/SP) – reflecting both AP and DP</td>
<td>- Single bid (£/MW.s/h) – reflecting AP only</td>
</tr>
</tbody>
</table>
| **Delivery Payment**      | - As pass-through – energy costs calculated by ESO ex-post as: \[\sum_h [\text{En. Cons. (kWh)} \times \text{SBP(£/kWh)}]_h\] | - N.a. – energy costs assumed by comm. prov. (utilisation and energy prices during contract duration) and embedded in AP bids | Possible options
  i. **Fixed DP**: DP (£/MW.s/h) set at the point of contract (e.g. Y-1), paid when the asset is utilised throughout the contract duration (e.g. 1 year)
  ii. **Indexed DP**: same as ‘option i.’, but DP is then indexed (through a formula, e.g. day-ahead/intra-day) against variable(s) linked to energy consumptions (e.g. energy price, inflation)
|                           |                      |                         | **Variants of Options i., ii.**
|                           |                      |                         | **Variable DP (capped)**: either ‘option i.’ or ‘option ii.’, but comm. prov. are free to bid a lower price (e.g. at D-1 stage, monthly, quarterly) than the fixed DP set at the point of contract – effectively fixed DP works as a cap for the lower bids offered by comm. prov. |

SP: Settlement Period; AP: Availability Payment; DP: Delivery Payment; SBP: System Buy Price (Imbalance Price)
Open questions for which feedback from the industry is required

1. Do you think the models presented for the LT & MT markets (Model C) are optimum?
2. Within the proposed Model C, would you be favourable to introduce a cap for the Delivery Payment, set at the point of contract? What type of indexation (e.g. imbalance price, energy costs) would be the most appropriate for adjusting such cap closer to real-time?
3. Would you instead prefer a fixed £/MW.s/h payment which encompasses both availability and utilisation (Model B – PF 2-3), or a variable utilisation payment (Model A – PF 1)?
4. Considering the technologies eligible, roughly what proportion of the overall investment in the LT/MT market equates to energy consumption costs?
5. Would you consider other models for the Delivery Payment?
6. Do you have any preferences between pay-as-bid and pay-as-clear price mechanisms for the Delivery Payment (for all LT/MT/ST units)? What are the motivations behind?

LT: Long-Term; MT: Mid-Term; ST: Short-Term; PF: Pathfinder
Agenda

1. Background 5
2. Remaining questions of WP2 9
3. Next Steps 32
The next steps in the long run are to address the WP3 exam questions

WP1: Key Design Questions
- TO involvement:
  - What are the key considerations for treatment of the TO assets?
  - What is the role of the TO in the LT market?
  - How do we enforce the selective eligibility for the ST market? Open to all providers? Are there unintended consequences?

WP2: Further Eligibility and Contract Design Questions
- Further analysis on network assets:
  - How is depreciation of TO assets assessed in a competitive market?
  - What are the participation routes and business cases for OFTOs and Interconnectors?
  - What are the eligibility rules for expired RAB assets?

  Contract structure:
  - How long should LT market contracts be?
  - What contract resolution should we choose for the ST market?
  - What provision should be made for contract extensions?
  - Should we have a utilisation payment for the services in the LT and/or ST markets?

  Selective characteristics:
  - How do we define incremental investment?

WP3: Procurement Strategy
- What are the stacking rules for stability contracts?
- What arrangements could be employed to mitigate market power in the ST market?
  - Treatment of TO, price cap backstop, within procurement

1. Moved from WP2 to WP1; 2. Moved from WP1 to WP2; 3. Not part of original scope | TO: Transmission Owner; LT: Long-Term; ST: Short-Term;
Next steps in the short run

1. AFRY will send a form to the Industry representatives to collect feedback on the topics presented today

2. AFRY will continue to engage with Industry in the next few weeks to address the topics covered in WP 3

3. A final webinar (covering the whole project material) would be arranged by first half of Q2 2023, target period for the project’s finalisation