Cap148

TCMF 14th August 2007

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Cap148 - DTEC

- Original provides for priority connection and treatment of renewables
  - Connection in 3 years (subject to local works)
  - Priority redespatch and administered bid pricing
- Original suggested TNUoS charging and constraint costs passed through TNUoS
- Working group do not support the original over alternatives
  - No alternatives supporting priority redespatch / administered pricing
- Alternatives are Connect and Manage with different flavours
  - Eligibility
  - 3 or 4 years
  - Force majeure
- DTEC converts to TEC when wider infrastructure complete

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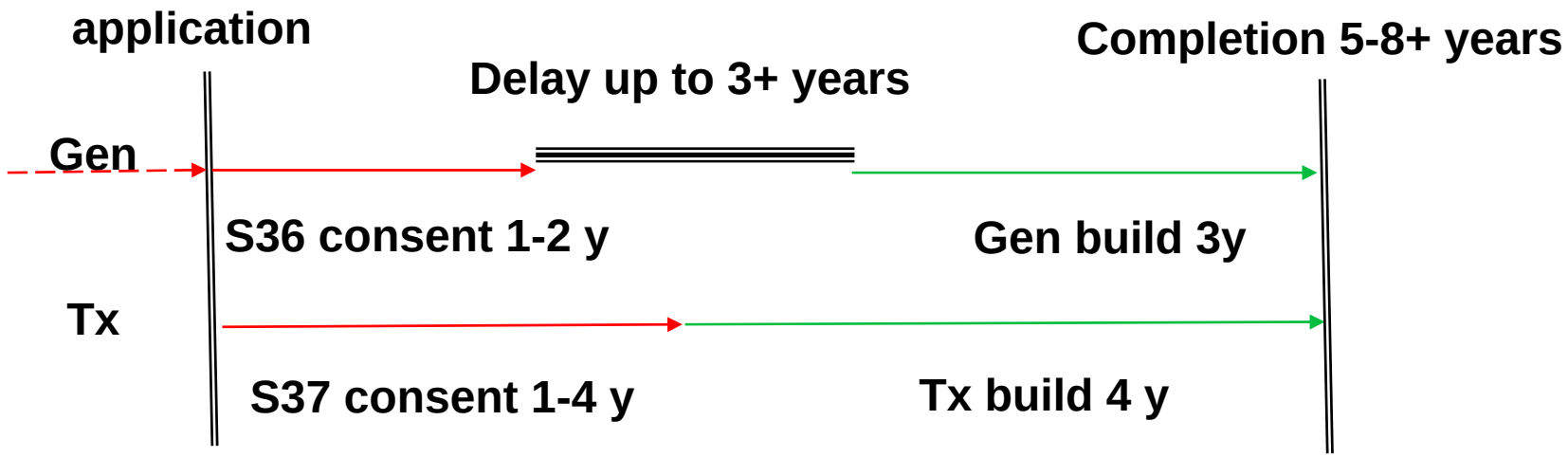
Current planning process

- The timeline below shows how the current connection process works
- The objective is that all works (transmission and generation) are delivered at the same time:



- Transmission is the critical path

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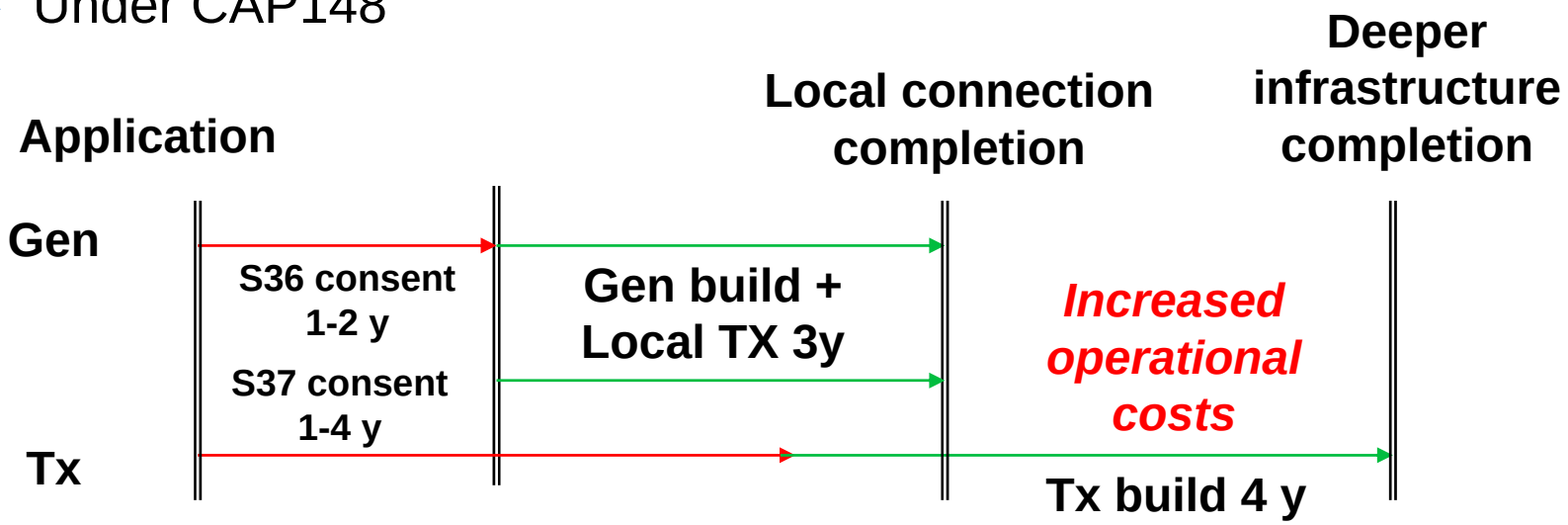
CAP 148 and planning process *

- Under CAP148



- Application prior to transmission consents
- Assumption that local works can be completed prior to deeper infrastructure completion (eg. S37 is not required for local works)
- Example: New generation north of Beauly-Denny line

* Based on slides presented by NG and RWE at Cap148 WG

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Cost of early connection

- Two main costs:
  - Cost of ‘local assets’
  - Increased operational costs
- Cost of local assets
  - Local assets are installed before they would have been
- Increased operational cost:
  - Larger incidence and volume of inherent constraints
  - Construction outages will be more expensive

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Assumptions

- Data used was from the TEC register
- Beyond 2016 assumed constant connection rate
- Incidence of constraints was assumed to be 10% of time
  - Under connect and manage incidence would increase
- Cost of constraint £65/MWh including replacement
  - Assumes current practice is to bid ‘losses’
- 3 year lead time i.e. first increase is 2011
- Analysis is on a single boundary
- These figures are **not** a forecast but only serve to demonstrate the order of magnitude

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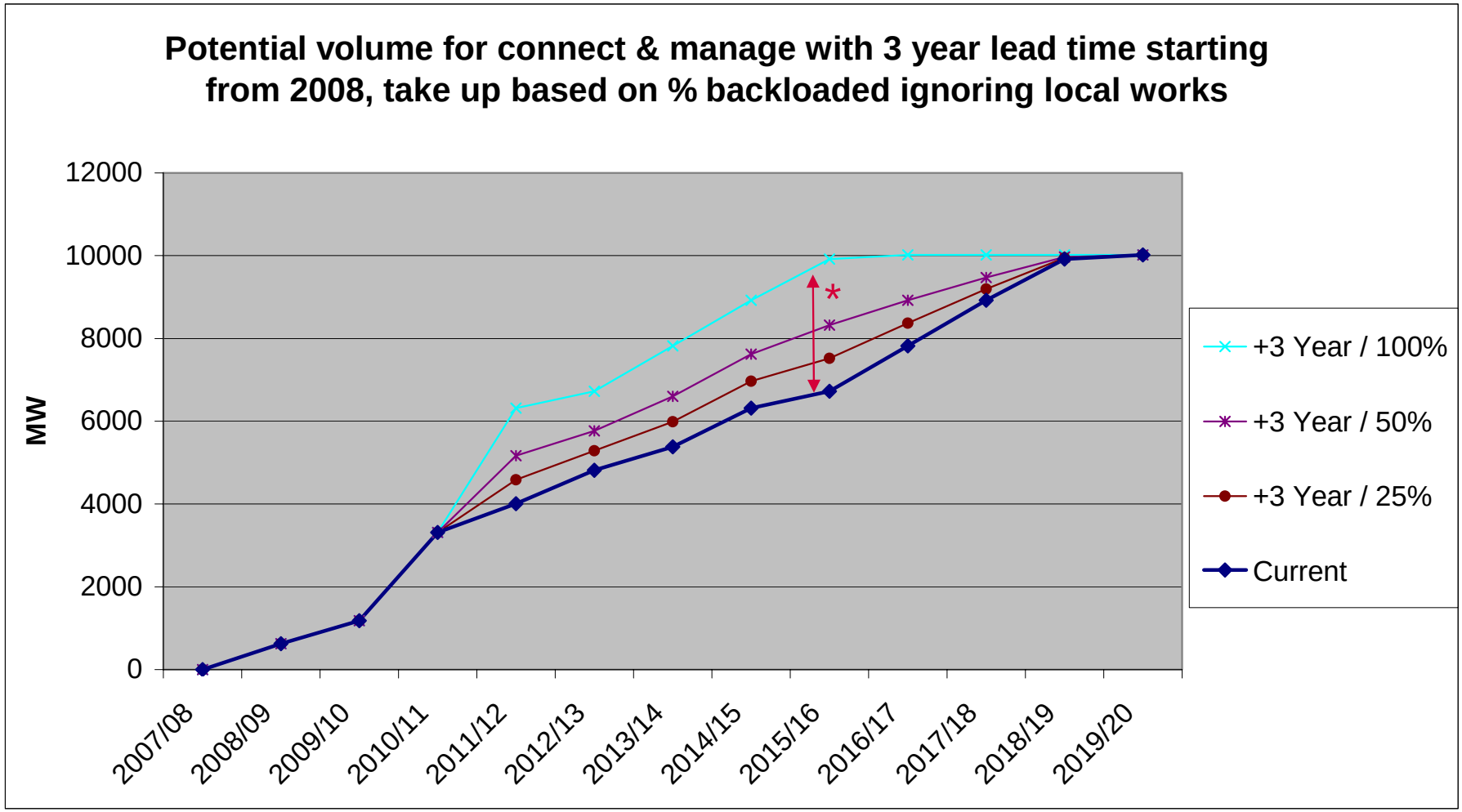
Volumes associated with a 3 year advancement



* Volume is the increase from current connection rate

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Potential volumes / costs

- Represents the additional constraint against the base line (including planned reinforcements)
- Volumes and cost if projects advanced by 3 years:

	Volume GWh	Cost £m
100%	8337	542
50%	4169	271
25%	2084	135

- Assumptions
  - 15% of time constrained 40% load factor for new plant
  - Only conventional plant constrained
  - Based on existing applications only
- Additional constraints costs only i.e. increase above the efficient level

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Annual costs

- The table shows the distribution costs over the connection period by percentage opting for a 3 year advancement
- 3 years is not linked to the 3 waiting period in Cap 148 original
- Figures are in £m / per annum

Projects advancing	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Total cost £/m
100%	79	65	83	89	109	75	38	3	542
50%	39	33	42	44	55	38	19	2	271
25%	20	16	21	22	27	19	9	1	135

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Assumptions

- The tables show the distribution of additional capacity and constrained volume for the 50 percent scenario
- Figures are in MW and GWh respectively

Projects advancing MW	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
50%	1154	955	1221	1303	1600	1100	550	50

- This converts to a constraint volume using the following :

  Capacity * constraint incidence (0.15) * Load factor (0.4) *8760

Projects advancing	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Total
50%	606	502	641	685	841	578	289	26	4169

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Constraint costs assumptions

- Sample on boundary transfer indicates that major system constraints ‘bite’ in the region of 10% of the time
- Every additional MW generated during these periods will be 100% constrained.
- Need to take account of nesting of constraints
- Incidence of constraint increases dramatically with a small increases in generation
  - 500MW increase in generation increases the constraint incidence from 10% to 35%.
- Along with £65/MWh and 40% load factor a 15% incidence equates to approximately £35/kW
- Construction outage costs would multiply if capacity was released early (this has not been factored in – in order of £100/kW total (incl. £35/kW from above)

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Impact on charging (1)

- TNUoS is based on the costs of building assets – LRMC
- Connect and manage imposes additional operational costs on all users (BSUoS) – SRMC
- In a perfect world, where assets can be built immediately, the SRMC and LRMC would be the same
- In the real world the SRMC driven by early connection is expected to be between £35/kW and £100/kW compared to a LRMC of between £13/kW and £22/kW
- TNUoS is not considered as a proxy for SRMC
- Users need to be exposed to approparite costs and signals:
  - More appropriate proxy for SRMC
  - Treatment of residual
  - Local asset charge

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SRMC

- DTEC users are requesting an additional service ‘early connection’
- Early connection increases SRMC
- Initial thoughts on SRMC:
  1) Annual kW charge based on annual forecast of costs
     - Simple but less cost reflective
     - Users know in advance
     - Risk borne by who?
  2) Based on ex post, MWh
     - More complex but more cost reflective
     - Users unsure of costs (similar to BSUoS, but more acute)
- Both have issues of transparency and subjectivity

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Treatment of residual element of TNUoS

- When no constraints occur DTEC users are still using the system
- If not charged would be at an advantage, free riding
- All users should be charged equally for the services provided
- The locational element of TNUoS is the LRMC, the residual is the balancing element.
- DTEC users have not sponsored assets, so should not be liable for the locational element?
- DTEC users are using the system so should contribute to the general revenue recovery, all users subject to:
  1) Commoditisation of the residual charged on MWh
  2) Annual charge of residual charged on capacity, kW

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Local asset charge

- Additional assets have been installed locally
- Several options
  1) Local ICRP charge
  2) One off advancement costs
  3) Annual advancement costs
- One off advancement cost (cost of building early, but not the actual asset cost) appears to strike balance between complexity, transparency, stability etc.

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Next Steps

- Next Steps
  - CUSC Working Group Report to 31 August CUSC Panel Meeting
  - CUSC Consultation [usually 4-6 weeks]
    - Respondents should be aware of National Grid's approach to charging?
  - Potential CUSC Consultation Alternative Consultation [2 weeks]
  - Potential Regulatory Impact Assessment [3 months]
- No need to develop charging arrangements further until Ofgem decision
  - 3 year lead-time associated with CAP148
- Charging arrangements described may be required for other access developments

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