

Intermittent Charging

Patrick Hynes, 30th June 2010



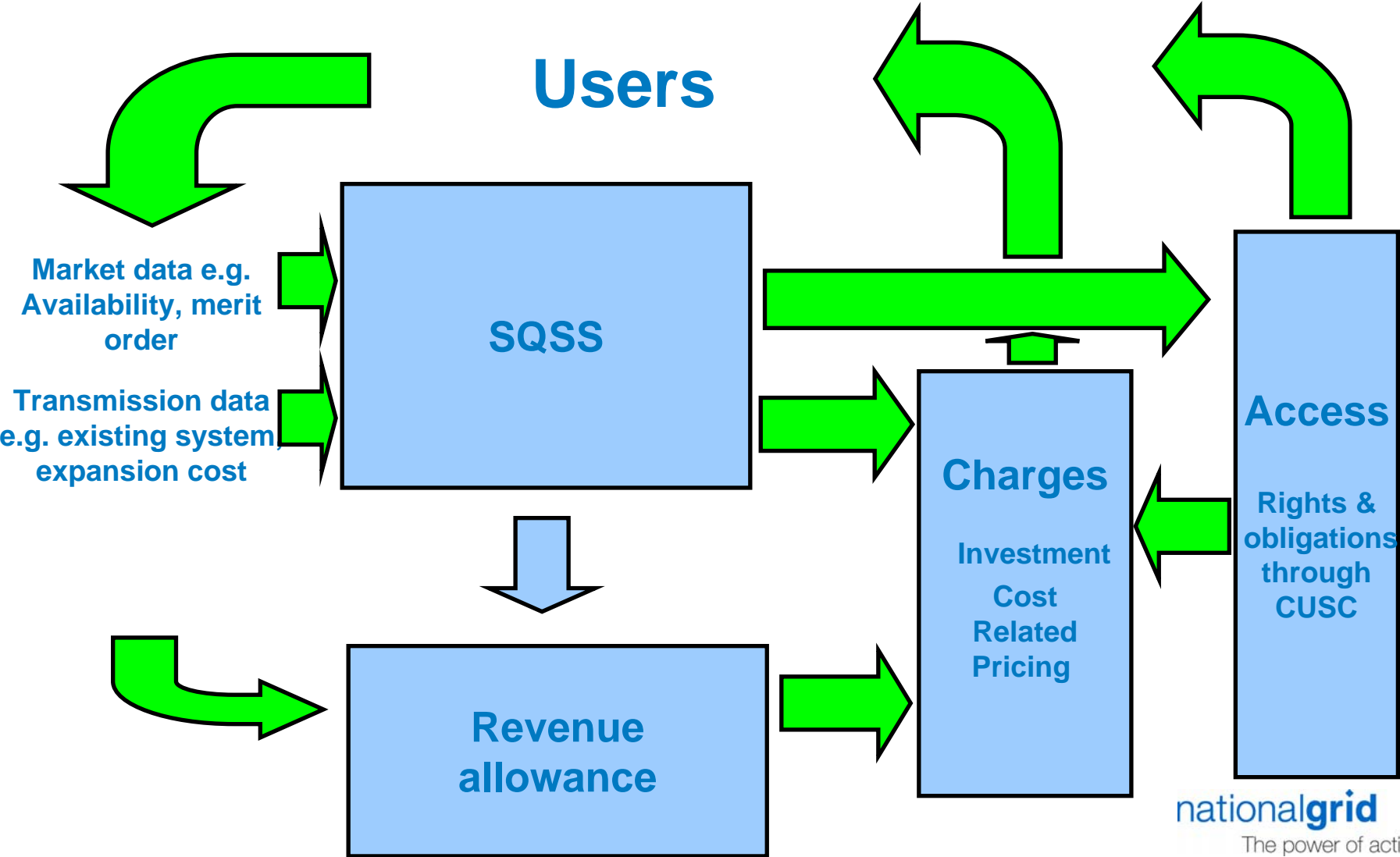
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Proposal

- ◆ To reasonably reflect SQSS recommendation within the methodology.
- ◆ Transport model impact:-
 - ◆ Set up 2 load flows, demand security/pseudo-CBA
 - ◆ Identify highest absolute base case flow line by line to categorise the investment driver as security or pseudo CBA
 - ◆ Nodal cost calculated by applying scaling factors to the effect of the marginal MW from the respective study
 - ◆ Scaling factor represent the assurance of sharing due to limited control over primary input
- ◆ End result = 2 sets of wider generation tariffs, one for conventional, one for intermittent
 - ◆ The locational elements in the demand tariff are based on the inverse signal for conventional generation
- ◆ If the SQSS recommendation changes then we need to consider further how we reasonably reflect the changes within the charging methodology.

Charges – interaction with investment and access

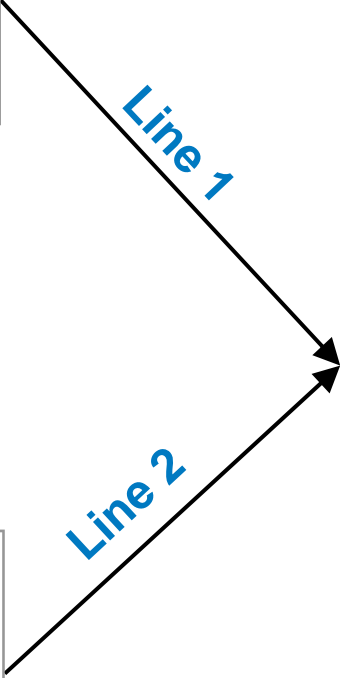


Current methodology – model at system peak

NODE A
 Demand : 0
 Conventional generation chargeable capacity : 1000
 Generation output: $1000 \times 0.72 = 720$
 Nodal export : 720MW

NODE B
 Demand : 600
 Intermittent generation chargeable capacity : 1000
 Generation output : $1000 \times 0.72 = 720$
 Nodal export : 120MW

NODE C
 Demand : 0
 Generation output : 0



	MW flow on line
Line 1	720
Line 2	120
Line 3	840

Create 2 load flows

- ◆ Assumptions used to create load flows reflect SQSS

Generator type	TEC	Scenario A - Demand security	Scenario B - Pseudo CBA
Intermittent	3,667	5%	70%
Nuclear	10,894	79%	85%
Interconnectors	3,268	0%	100%
Hydro & Pumped	3,427	79%	75%
Peaking	5,025	79%	0%
Other (Conventional)	58,986	79%	75%

- ◆ ‘Straight scaling’ of non fixed plant (plant in light grey) i.e. no merit order used to determine non contributory plant.
- ◆ Note: in Pseudo CBA Peaking Generation (MGT&Oil) are not available.

Run Demand Security load flow

NODE A

Demand : 0
Conventional generation chargeable capacity : 1000
Generation output: $1000 \times 0.79 = 790$
Nodal export : 790MW

NODE B

Demand : 600
Intermittent generation chargeable capacity : 1000
Generation output : $1000 \times 0.05 = 50$
Nodal **import** : 550MW

NODE C

Demand : 0
Generation output : 0

Line 1

Line 2

Line 3

Transmission network

	MW flow on line
Line 1	790
Line 2	550
Line 3	240

Run pseudo CBA load flow

NODE A

Demand : 0
Conventional generation chargeable capacity : 1000
Generation output: $1000 \times 0.75 = 750$
Nodal export : 750MW

NODE B

Demand : 600
Intermittent generation chargeable capacity : 1000
Generation output : $1000 \times 0.7 = 700$
Nodal export : 100MW

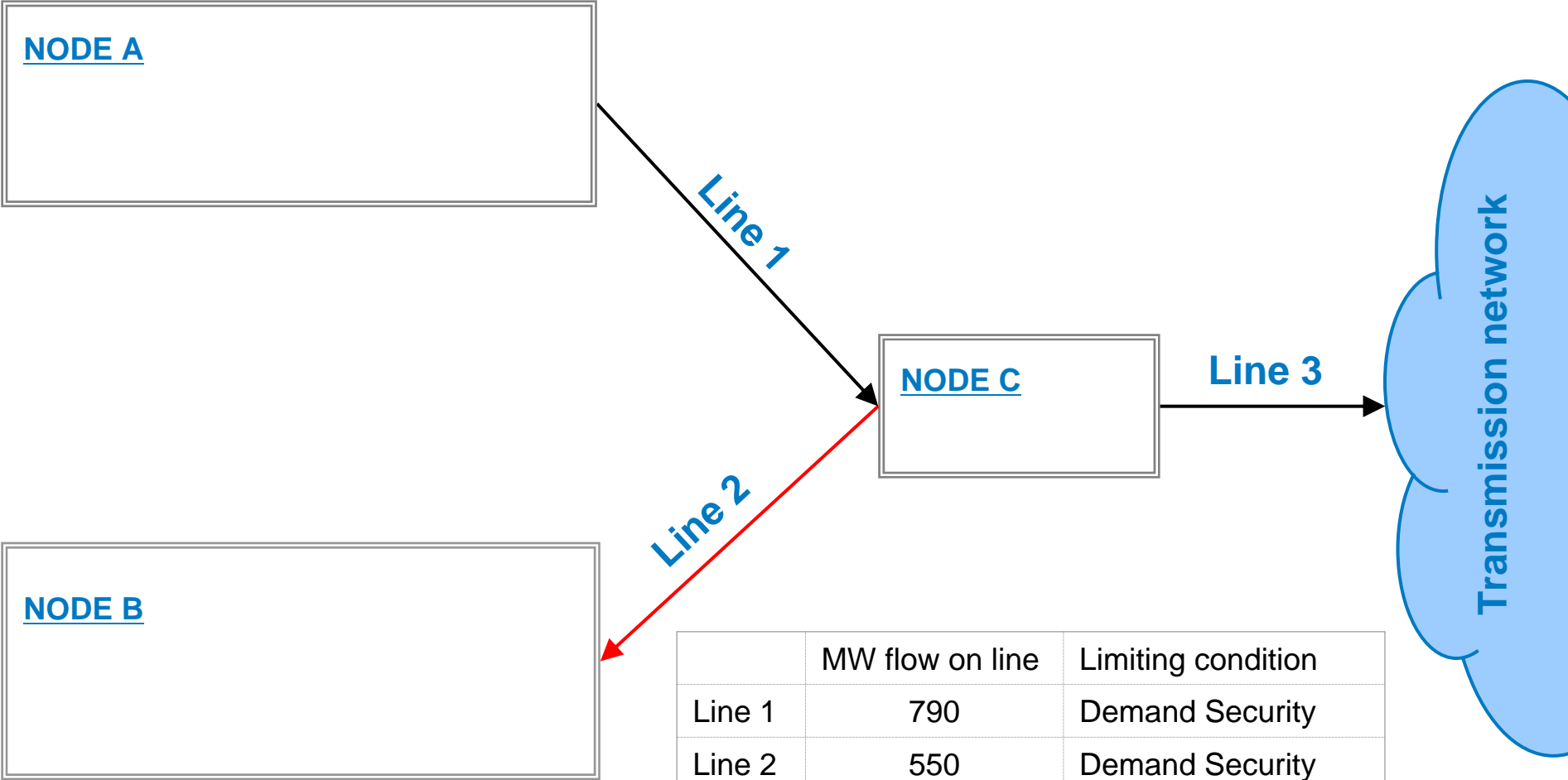
NODE C

Demand : 0
Generation output : 0

Transmission network

	MW flow on line
Line 1	750
Line 2	100
Line 3	850

Combine both load flows



	MW flow on line	Limiting condition
Line 1	790	Demand Security
Line 2	550	Demand Security
Line 3	850	Pseudo CBA

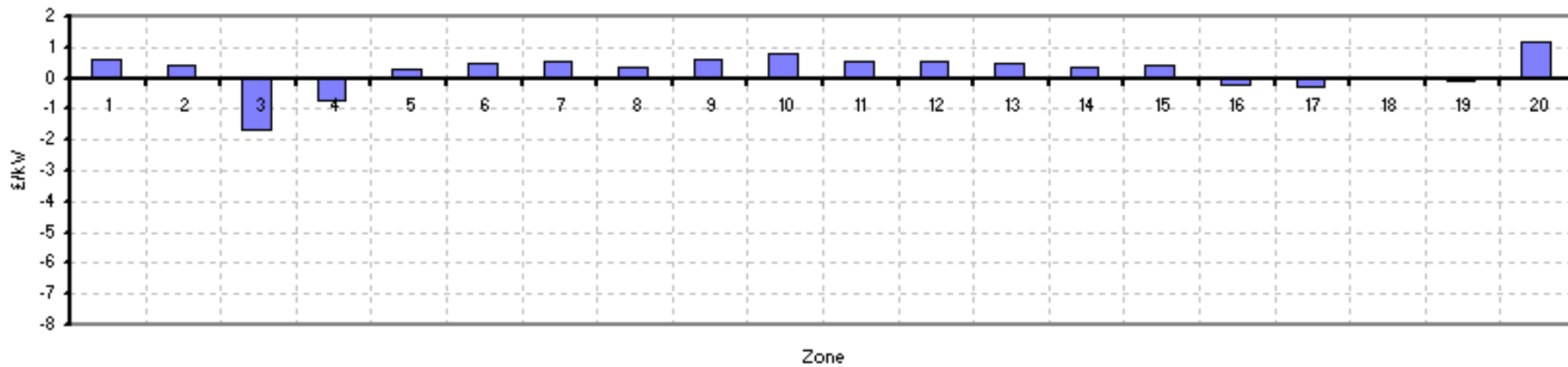
Calculating nodal costs

		Line 1	Line 2	Line 3
Node A				
	Intermittent	+0.05	-	+0.7
	Conventional	+1	-	+1
Node B				
	Intermittent	-	-0.05	+0.7
	Conventional	-	-1	+1

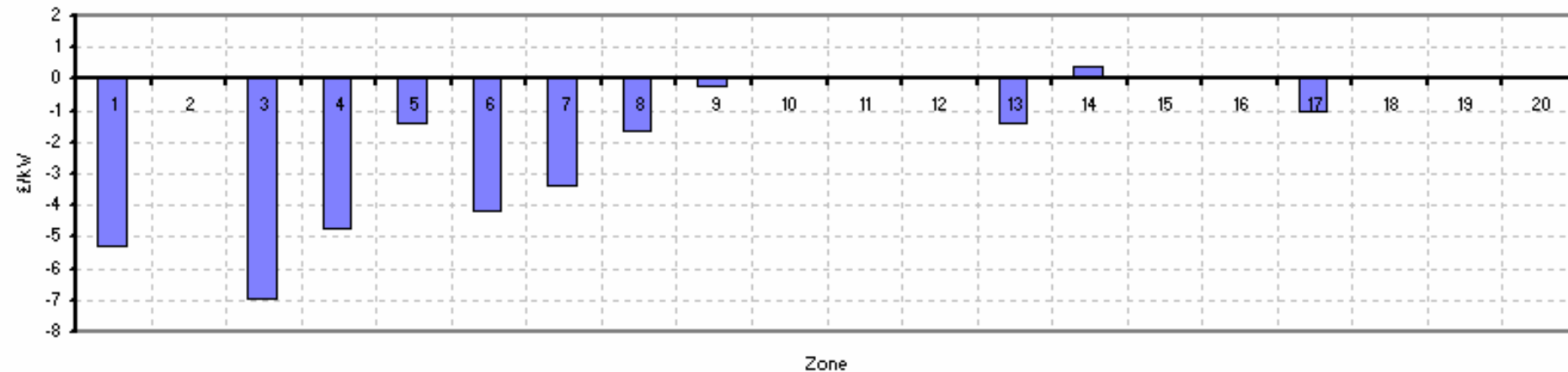
The above table shows the tariff of a conventional generator at node A will include the cost of lines 1 & 3, whereas an intermittent generator's tariff will mainly be the cost of line 3 (the benefit on line 2 is minimal compared to conventional).

Impact on 2010/11 generation WIDER tariffs

Conventional



Intermittent



Next steps

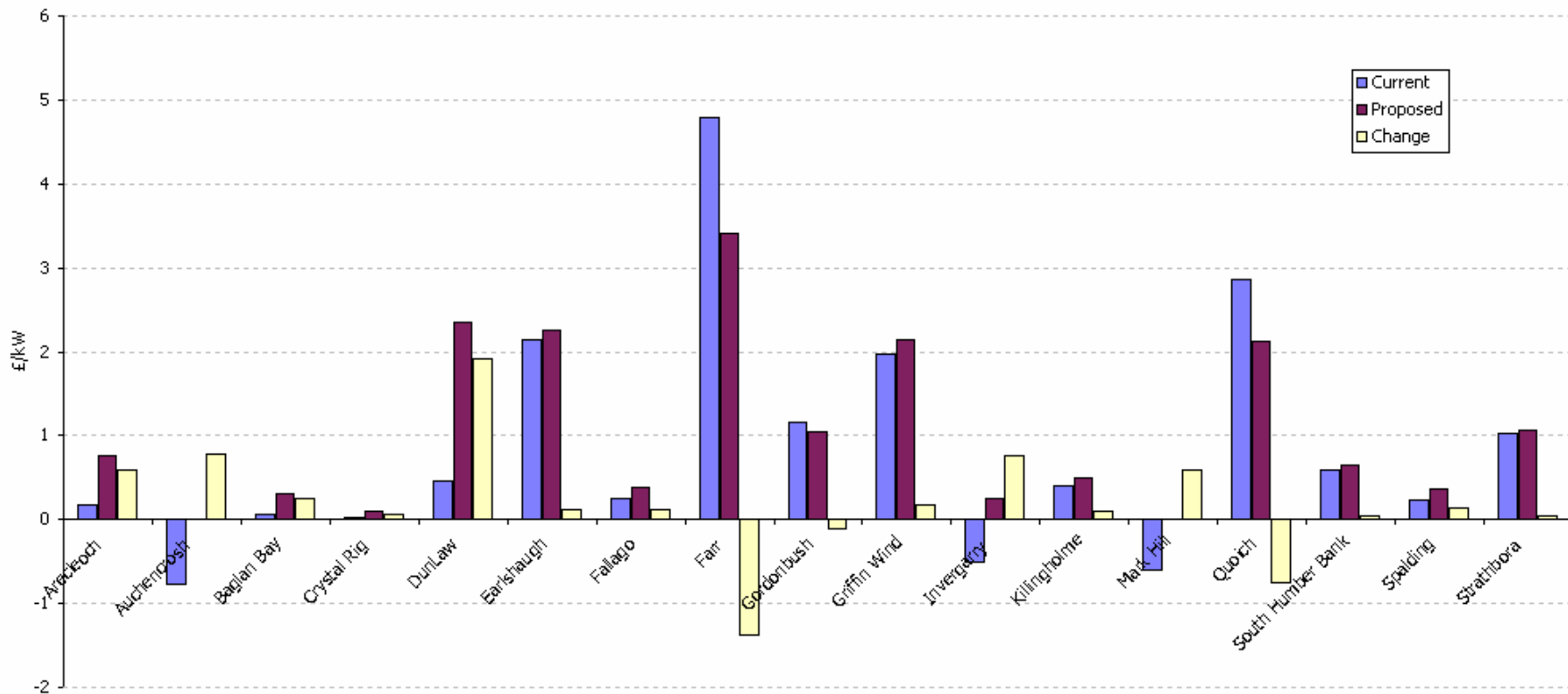
- ◆ Charging consultation published last Friday
 - ◆ Responses by 23rd July,
- ◆ Target implementation 1st April 2011

- ◆ Final proposals and timing subject to SQSS

Any questions?



Impact – Final tariffs 2010/11 – LOCAL TARIFFS



Only showing local tariffs that change

Impact – Final tariffs 2010/11

Zone No.	Zone Name	£/kW		
		2010/11 FINAL Current	New methodology Conventional Intermittent	
1	North Scotland	20.08	20.67	14.78
2	Peterhead	18.71	19.14	
3	Western Highland & Skye	22.79	21.12	15.85
4	Central Highlands	17.63	16.91	12.92
5	Argyll	13.34	13.66	11.94
6	Stirlingshire	13.44	13.89	9.26
7	South Scotland	12.49	13.04	9.11
8	Auchencrosh	10.91	11.24	9.27
9	Humber & Lancashire	5.42	6.01	5.19
10	North East England	8.79	9.60	
11	Anglesey	6.17	6.71	
12	Dinorwig	5.50	6.04	
13	South Yorks & North Wales	3.59	4.06	2.18
14	Midlands	1.56	1.95	1.95
15	South Wales & Gloucester	0.39	0.78	
16	Central London	-6.41	-6.64	
17	South East	0.81	0.53	-0.24
18	Oxon & South Coast	-1.36	-1.30	
19	Wessex	-2.64	-2.72	
20	Peninsula	-5.87	-4.69	

Impact – Condition 5 - 2014/15

£/kW		Condition 5	New methodology	
Zone No.	Zone Name	Forecast	Conventional	Intermittent
1	North Scotland	19.21	19.16	11.80
2	Peterhead	18.69	18.37	
3	Western Highland & Skye	19.05	17.76	11.83
4	Central Highlands	17.00	15.74	10.47
5	Argyll	14.16	13.47	9.43
6	Stirlingshire	13.61	13.51	7.58
7	South Scotland	12.46	13.03	7.27
8	Auchencrosh	12.35	11.28	7.81
9	Humber & Lancashire	5.06	5.28	2.59
10	North East England	8.46	9.33	
11	Anglesey			
12	Dinorwig	5.43	5.53	
13	South Yorks & North Wales	2.98	3.34	1.49
14	Midlands	0.99	1.24	2.03
15	South Wales & Gloucester	1.39	1.66	-1.53
16	Central London	-7.98	-7.80	
17	South East	-0.75	-0.55	2.34
18	Oxon & South Coast	-2.95	-2.68	
19	Wessex	-4.18	-4.09	
20	Peninsula	-3.22	-4.23	-0.28

Impact on 2010/11 demand tariff

