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Aidan Stennett

Power NI: tariff methodology

1 Introduction

The following paper supplements Northern Ireland Assembly Research and Information Service paper 639-13 '*Electricity tariffs: components and legislative underpinnings*'. It does so by outlining how Power NI's total allowable revenue is broken down into the pence per kilowatt hour (p/kWh) rate consumers pay for their electricity.

Information on this is limited due to commercial sensitivity.¹ It is therefore, only possible to discuss the tariff methodology in general terms.

2 Total allowable revenue

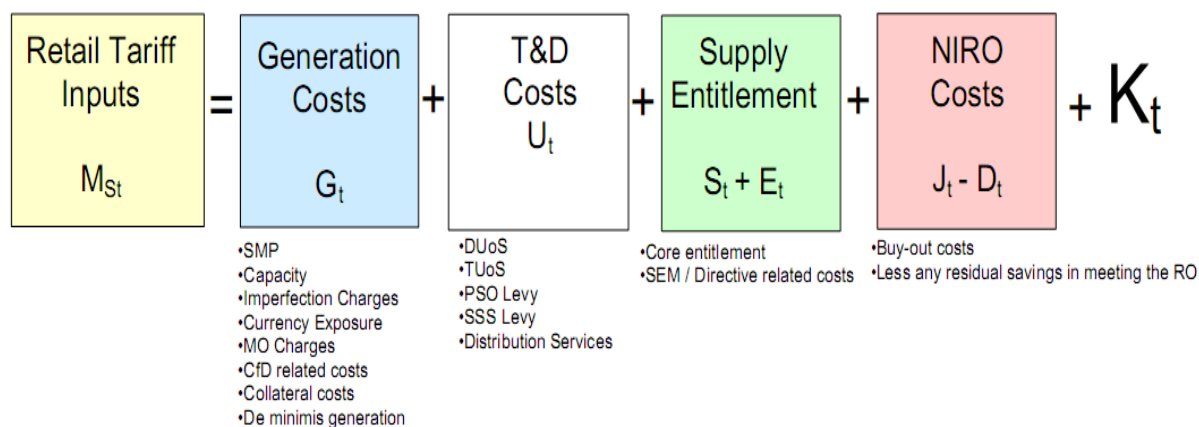
As noted in previous research the Utility Regulator agrees Power NI's total allowable revenue as part of its review of the firm's retail tariff. Power NI is permitted to set its tariff at level which covers the various cost components that the company incurs for supplying electricity, plus a set profit margin.

Power NI recovers this total allowable revenue from a proportion of its customer base – that is, those customers who fall within Power NI's regulated tariff (domestic customers and non-domestic customers that consume up to 150MWh per annum).

¹ Email correspondence with Power NI 17 September 2013

The component parts of Power NI's total allowable revenue are set out in Figure 1 (note K_t refers to the correction factor, and is only applied in the case of an under or over recovery in a previous tariff year).

Figure 1: Power NI total allowable revenue²



3 Tariff methodology – from total allowable revenue to p/kWh

Power NI's licence conditions place certain obligation on the company when it comes to setting tariffs. It is required to:

- Use its best endeavours to ensure that the average charge per unit supplied does not exceed a price control maximum, which is calculated by adding the average cost of its purchases of electricity generation, transmission etc to an allowed supply business charge;
- Ensure that it does not sell electricity to any customer in any market in which it is dominant, on terms which are materially more or less favourable than those on which it sells to other comparable customers; and,
- Avoid cross-subsidising other businesses.

The company's total allowable revenue for the 2013/14 period is £420m. This figure is calculated through a bottom-up process. In other words, rather than a figure being imposed on Power NI by the Utility Regulator, for example, Power NI calculate how much revenue is required to meet the costs outlined in Figure 1 based upon demand and customer numbers.

Rather than applying an average rate to all customers – that is a single tariff that would equal total revenue divided by total units – the company offers a range of tariff categories, Home Energy Key Pads, Domestic Standard, and Domestic Economy 7 for example (13 tariffs are available, these are outlined in Section 4).³

² Power NI *Tariff Methodology Statement prepared by Power NI* (July 2013), provided by Power NI 12 September 2013

³ *Ibid*

To establish unit rates for each tariff category, Power NI calculate the number of customers on each tariff based upon the previous year's numbers and projections of household formation, economic activity and migration of customers from one supplier to another. They also project demand on each tariff based upon the previous year's customer numbers and economic activity. Attrition rates are also factored in; this allows the company to account for customer movements that result from switching. These figures are then used to allocate wholesale cost, such as energy charges, use of system charges, etc., according to each tariff category's usage or demand profile.⁴

Individual charges are modelled to specific tariffs on a forecast demand basis. Charges are divided into two categories, which define the way in which they are allocated to a tariff. Project level inputs are applied to all tariffs in the same manner – e.g. energy, whilst tariff level inputs have a tariff specific allocation – e.g. DuOS.⁵

Cost allocations are calculated on a half hourly basis to account for fluctuations in the delivered price of electricity which correspond to when the electricity is used.⁶ To enable this half-hourly allocation, Power NI makes use of market profiles which allow them to break down demand into half hour blocks. This half-hourly cost allocation results in a 365(days in the year)x48(half-hours in a day) spread sheet in which each cell contains the p/kWh charge for a particular half hour period in a year. An individual 365x48 spread sheet is created for each cost input within each tariff.⁷

This process of assigning costs on a half-hour basis allows the company to calculate tariff prices at the lowest possible level of granularity.⁸

Power NI's Tariff Methodology states that:

The charges on each tariff will be set so that there is an expectation that, at the forecast demand, they will recover an amount equal to the expected costs and allowed revenue allocated to that tariff.⁹

In other words, whilst different tariffs are charged the total amount recovered will be equal to the allowed revenue. In the case of over, or under recovery, a correction factor will be applied in the subsequent tariff year. Correction factors are not applied to Energy Price Adjusted tariffs (EPA) as these tariffs are adjusted in year according to energy price movements and do not contribute to under or over recovery.

The Utility Regulator has a scrutiny and regulatory role throughout the tariff setting process. The Regulator will approve Power NI's GT Statement, for example. This statement sets out the company's forecast generation costs. Other components of the

⁴ *Ibid*

⁵ From meeting with Power NI 17 September 2013

⁶ Email Correspondence with the Utility Regulator 10 September 2013

⁷ From meeting with Power NI 17 September 2013

⁸ *Ibid*

⁹ Power NI *Tariff Methodology Statement prepared by Power NI* (July 2013), provided by Power NI 12 September 2013

retail tariff, such as transmission, distribution and supply costs, are governed by their own price control procedures which are subject to Regulator scrutiny and approval.¹⁰

4 Risk and hedging

As noted above, Power NI allocates cost based upon demand forecasts. The company accept that a number of risks to this forecasting, including variations in:

- Customer numbers – e.g. due higher or lower attrition rates;
- Electricity consumption – due to adverse weather conditions, or changes in economic conditions;
- The effect of global settlement;
- Pool prices;
- Fuel price variation;
- Plant availability; and,
- Exchange rates.

The company's hedging policy attempts to mitigate these risks. Hedging enables Power NI to insulate themselves and their customers from future cost rises resulting from wholesale gas price volatility by buying on a forward basis at a fixed price. The cost of purchasing hedges is factored into the p/kWh price of tariffs to which they apply. In practice hedges are applied to quarterly tariffs. They are not applicable to Energy Price Adjusted tariffs where the price customers pay tracks fluctuations in the energy price. A subsequent RaISe paper will examine hedging in greater detail.

Power NI will also monitor risk factors throughout the year. Should variations in the above lead to an error in forecasts of plus or minus 2.5% the company will consider instigating an in-year tariff adjustment (as opposed to the annual tariff adjustment scheduled for each October).¹¹

5 Tariff categories

As noted below, Power NI is offering 13 different tariff categories for the 2013/14 period. These are divided into three categories, domestic, Economy 7 and small business. Four tariff categories fall within the domestic grouping:

- Home Energy;
- Eco-energy;
- Power shift energy; and,
- Energy shift tariff.

¹⁰ The Utility Regulator 'Power NI's 1 July 2013 Tariff Review – A Regulatory Briefing' (1 July 2013)

http://www.uregni.gov.uk/uploads/publications/Retail_Tariff_Background_Briefing_May_2013.pdf

¹¹ Power NI *Tariff Methodology Statement prepared by Power NI* (July 2013), provided by Power NI 12 September 2013

Eight tariff categories fall within the small business grouping:

- Popular;
- Weekender;
- Nightsaver;
- Farm popular;
- Farm nightsaver;
- Multi-rate >70Kva;
- Multi-rate ,70Kva; and
- Maximum demand.¹²

Table 1 outlines the p/kWh charge (and standing charges where applicable – for some tariffs, quarterly Home energy for example, the standard charge is incorporated into the p/kWh charge) for each of the tariffs that fall within these tariffs groupings. It also includes charges for Economy 7 and for preserved charges – that is charges which are no longer offered but that some customers remain on. These rates are sourced from Power NI's Tariff Methodology 2013, but apply to the period beginning October 2012.¹³

¹² *Ibid*

¹³ *Ibid*

Table 1: Power NI Tariffs (Oct 2012)¹⁴

Tariff Category	Tariff Description	Item	Price	
Home Energy Quarterly	Home Energy Standard	Standing Charge /Qtr ¹⁵	-	
		unit rate p/kWh	14.58	
	Home Energy online	Standing Charge /Qtr	-	
		unit rate p/kWh	14.58	
	Home Energy Heating (Economy 7)	Standing Charge /Qtr	£10.39	
		Day rate p/kWh	14.64	
		Night/Heating rate p/kWh	7.14	
	Off Peak tariffs (preserved)	8 hour 11 hour 15 hour 16/18 hour	Standing Charge /Qtr	£5.93
			unit rate p/kWh	9.39
			unit rate p/kWh	11.34
			unit rate p/kWh	12.62
unit rate p/kWh			13.34	
Business Energy Quarterly	Popular Option with EPA	Standing Charge /Qtr	£11.74	
		unit rate p/kWh	13.65	
	Night Saver Option with EPA	Standing Charge /Qtr	£11.74	
		Day rate p/kWh	14.52	
		Night/Heating rate p/kWh	7.99	
	Weekender Option with EPA	Standing Charge /Qtr	£11.74	
		Day rate p/kWh	16.13	
		Evening & weekend p/kWh	9.96	
	Popular Option fixed rate	Standing Charge /Qtr	£11.74	
		unit rate p/kWh	13.76	
	Night Saver option fixed rate	Standing Charge /Qtr	£11.74	
		Day rate p/kWh	14.63	
		Night and heating rate p/kWh	7.99	
	Weekender option fixed rate	Standing Charge /Qtr	£11.74	
		Day rate p/kWh	16.25	
		Evening & weekend p/kWh	10.05	
	Farm Popular	Standing Charge /Qtr	£10.39	
		unit rate p/kWh	13.76	
	Farm Night saver option	Standing Charge /Qtr	£10.39	
		Day rate p/kWh	14.34	
Night/Heating rate p/kWh		7.94		
Unmetered continuous		Continuous rate p/kWh	12.93	
Unmetered continuous		Dusk to Dawn rate p/kWh	11.58	

¹⁴ *Ibid*¹⁵ Standing charges do apply to this and other Home Energy tariffs. The charges are incorporated into the p/kWh charge rather than a stand-alone charge.

Tariff Category	Tariff Description	Item	Price
Business Energy Monthly MV	MV Maximum Demand	Standing Charge /Mth	£7.35
		Availability Charge £/kVa/Mth	£2.20
		Winter peak demand charge £/kVa/Mth	£3.50
		Standard Day p/kWh	12.03
		Winter Day (Nov to Feb) p/kWh	17.11
		Evening & weekend p/kWh	11.58
		Night p/kWh	9.14
	MV Multirate	Standing Charge /Mth	£7.35
		Availability Charge £/kVa/Mth	£2.20
		Winter Peak Nov to Feb p/kWh	23.3
		Winter Day Nov to Feb p/kWh	17.11
		Standard Day p/kWh	12.03
		Evening & weekend p/kWh	11.58
		Night p/kWh	9.14
Winter peak Reactive p/kVArh	12.435		
POWER NI Regulated Keypad Tariffs	Home Energy Keypad	Standing Charge /Qtr	-
		unit rate p/kWh	14.216
	Home Energy Power Shift Keypad Preserved	Standing Charge /Qtr	-
		Peak rate p/kWh	22.72
		Normal rate p/kWh	12.77
		Low rate p/kWh	8.51
	Home Energy Heating keypad (Economy 7)	Standing Charge p/Day	11.102
		Day rate p/kWh	14.274
		Night/Heating rate p/kWh	6.962
	Off Peak Keypad	Standing Charge p/Day	6.35
		8 hour unit rate p/kWh	9.151
		11 hour unit rate p/kWh	11.054
		15 hour unit rate p/kWh	12.305