UNIVERSITY OF CAPE TOWN

GSB POWER FUTURES

FINANCIAL MODELLING FOR UTILITY TARIFF SETTING
EXECUTIVE EDUCATION SHORT COURSE
23 AUGUST - 3 SEPTEMBER 2021
https://www.gsb.uct.ac.za/financial-modelling

	Friday 16-Aug-2021 Pre-course basics	Monday 23-Aug-2021 Introduction to Economic Regulation Model drivers and scenarios	Tuesday 24-Aug-2021 Utility Sustainability	Wednesday 25-Aug-2021 Regulatory Asset Base	Thursday 26-Aug-2021 Opportunity Cost of Capital WACC	Friday 27-Aug-2021 Depreciation	Monday 30-Aug-2021 3-way Financial Statements	Tuesday 31-Aug-2021 OPEX	Wednesday 01-Sep-2021 CAPEX	Thursday 02-Sep-2021 Tariff Structure	Friday 03-Sep-2021 Recap
	Videos can be watched at any time but before the scheduled afternoon sessions						**Videos can be watched at any time but before the scheduled afternoon sessions**				
08h00 - 11h00	***Videos (all Pivotal180)*** *0.12 Intro to debt and equity (6 min)* *0.13 Benefits of leverage (3 min)* *0.14 Present value math (18 min)* *0.15 NPV Function (5 min)* *0.16 IRR (8 min)* *(Excel functions videos: 14 min)* *(Best practice videos: 16 min)* ***Reading:*** *- Demise of the standard reform model (Gratwick & Eberhard)* *- Financial Viability of Electricity Utilities in Africa*	***Videos*** *1.1 Utility overview and definition of case study* *1.2 Need for financial models* *1.3 Final model overview* *1.4 Excel shortcuts and introduction* *1.5 Objectives of economic regulation* *1.6 Overview of economic regulatory methodologies*	***Videos*** *1.1 Economic sustainability* *1.2 Financial sustainability* *1.3 Modeling alternatives: real vs nominal - firm or equity holders - tax treatment - flow vs discount rate* *1.4 Demand Projections*	***Videos*** *1.1 Asset Base: Which assets to include how to value them for regulatory purposes.* *1.2 Historic vs replacement values* *1.3 Final Asset Base* ***Reading:*** *- Asset base evolution* *- RAB & Depreciation Notes* *- Asset Valuation*	***Videos*** *1.1 Weighted Average Cost of Capital (WACC)* *1.2 Risk aversion* *1.3 Risk vs returns* *1.4 Cost of debt (credit ratings* *1.4 Country Risk premium*	***Videos*** *1.1 Regulatory treatment of Depreciation* *1.2 Depreciation methods* ***Reading:*** *Cost Recovery and Financial Viability of the Power Sector in Developing Countries - WB*	***Videos*** *1.1 3-way financial statements (balance sheet, income statement, cash flow statement / cashflow waterfall)* *1.2 Working capital*	***Videos*** *1.1 OPEX – Benchmarking* *1.2 Efficiency factors* *1.3 Regulatory treatment of losses*	***Videos*** *1.1 Regulatory treatment of investments* *1.2 Investment types (replacement, expansion, quality)* *1.3 South Africa - Cost of Supply methodology*	***Videos*** *1.1 Allocative efficiency* *1.2 Cost allocation principles* *Residential and non-residential tariffs*	*Revision*
		Afternoon Live Online Sessions						***Afternoon Live Online Sessions***			
12h00-12h30	Test Run	**Welcome** Course Overview Learning approach	**Revenue Requirement Building Blocks** (20 min)	**RAB main conceptual issu**es (20 min).	Tutor session on WACC and risk vs return.	**Regulatory aspects of depreciation** (15 min)	Week 1 review	**Operating costs and efficiency factor** (15 minutes)	**Regulatory treatment of investments** (15 minutes)	**Modelling alternative tariff structures**	Tutors: Questions, clarifications
12h30-13h00		**"Power utility challenges in Africa**	**Modelling:** - Best practices in modeling revenue requirements to determine tariffs - Presentation of Simple Integrated Model - single year Model	**DisCoXX RAB** - Non regulated assets - Working capital - User contributed assets	**WACC calculations** - Add WACC calculation and revise current tariff requirement.	**Depreciation calculations I:** - Develop reducing balance and straight line depreciation calculations and allocate capital costs to appropriate category.	**3-way financial statements I** - Build up forecast financial statements	**Operating cost** Develop operating costs calculations Efficiency factor estimates	**Investments**: - Develop investment calculations (definition and use of capex drivers - energy users peak demand, etc). - Exogenous investments	**Graphing and variance analysis** - Building effective graphs to communicate a story and describe variances in actual performance to projected performance.	**Best practices for modeling** - Recap of approaches. - Application to other scenarios.
13h10-13h40		**Key regulatory Objectives/ aspects of tariff regulation**	**Limitation of test-year approach - Multi year tariffs** (15 min)	**Sources of finance:** - Debt, equity, third party assets. User contributed assets.	**Sensitivity of Tariff to WACC, capital costs.** - Review the impact of each input to WACC on the tariff required.	**Depreciation calculations II:** - Develop reducing balance and straight line depreciation calculations and allocate capital costs to appropriate category.	**3-way financial statements II** - Build up forecast financial statements	**Losses** Develop losses calculations.	**Endogenous investments:** - Financial restrictions - Impact of WACC and depreciation on financeable investments	**Best practice use of Excel Goal Seek** - Use Goal seek to determine tariffs or costs required to meet tariff thresholds	**South Africa Case Study (Optional)** SSEG Tariff Derivation & Compensation Schemes
13h40-14h20		**Financial modelling as a regulatory tool.** - International experience	**Simple multi-year tariff mode**l - Sensitivity of tariffs to main building blocks	**Historic vs forecast modeling** - Develop flexibility in the model to review historic data AND determine a forecast.	BREAK	**Depreciation calculations III** - Finalize depreciation calculations and review impact on tariffs required.	**Estimating financial needs**	**Determine revised tariff**: Comparison of tariffs for different levels of operating costs.	BREAK	**Live Exercise:** - Final case study: distributed solar PPAs and storage	**Anton Eberhard/Peter Twesigye** Thanks & Farewell
14h30-15h30		**Tutor Clarifications**	**Tutor Clarifications**	**Tutor Clarifications**	**Tutor Clarifications**	**Tutor Clarifications**	**South Africa Case study (Optional)** - Multi-year Tariff Setting and Tariff Orders - Concept of Regulatory Clearing Accounts (RCA) and its workings	**South Africa Case Study (Optional)** - NERSA'S Cost of Supply methodology - NRS058 - Calculation of connection charges and capital contributions in line with NRS069	**South Africa Case Study (Optional)** - Energy Transacting - Wheeling tariff formulation methodologies and pricing for bi-directional energy flow	**South Africa Case Study (Optional)** - SSEG Cost of Service Tool & Impacts on Munic revenues	
30mins		Review of Videos and Pre-Course Reading Materials					**Tutor Clarifications**	**Tutor Clarifications**	**Tutor Clarifications**	**Tutor Clarifications**	