Guide to Phase 2 Report Files

27 November 2025

The zip file Phase 2–Supporting files–27Nov2025.zip contains all files used in the analysis for the Phase 2 Report. These files are described in detail in this document.

1 Opportunity for Refinement Models

This folder contains all files used in the analysis for Section 3 of the Phase 2 Report and Attachment A. The contents include:

1.1 Half Normal ABR24

Contains the Stata files used to estimate the half-normal version of the standard SFA models applied in ABR24. The results of this analysis are presented in Section 3.1 of the Phase 2 Report and in Section 1 of Attachment A.

1.2 xtreg

Contains the Stata files used to estimate an alternative version of the LSE models, using the *xtreg* command. The results of this analysis are presented in Section 3.2 of the Phase 2 Report and in Section 2 of Attachment A.

1.3 Five Outputs

Contains the Stata files used to estimate cost functions with additional outputs: energy delivered and CMOS. The results of this analysis are presented in Section 3.3 of the Phase 2 Report and in Section 3 of Attachment A. This folder is organised into four subfolders:

1.3.1 Data Mgt

Contains the files used to compile and aggregate variables for Australian and international DNSPs.

- *dnspbench24-firm.dta* – Australian dataset.
- *Ontario ABR25 Data* – 26May2025.xlsx – Ontario dataset.
- *Quantonomics-AER-NZData* – 26May2025.xlsx – New Zealand dataset.

- *m_DNSPopex24-5Out.do* – Stata program used to merge the datasets. Running this program generates six files:
    - *m_DNSPopex24-5Out.log* – log file of the program.
    - *OpexFnData.xlsx and DNSPopex24-5Out.dta* – datasets produced by the program.
    - *average_CMOS_chart.png*, *average_energy_chart.png*, and *average_SAIDI_chart.png* – figures comparing CMOS, energy delivered, and SAIDI values across jurisdictions.

1.3.2 4 Outputs - CMOS

Contains the Stata input files and resulting output files used to estimate the opex cost function, including the CMOS output.

1.3.3 4 Outputs - Energy

Contains the Stata input files and resulting output files used to estimate the opex cost function, including the energy delivered output.

1.3.4 5 Outputs

Contains the Stata input files and resulting output files used to estimate the opex cost function, including both CMOS and energy delivered outputs.

1.4 Input Prices

Contains the Stata files used to estimate the cost functions including an additional output: the ratio of input prices. The results of this analysis are presented in Section 3.4 of the Phase 2 Report and in Section 4 of Attachment A. This folder is organised into three subfolders:

1.4.1 NZ Data

This subfolder includes the programs and outputs used to extract and manage the data from the NZ Disclosure workbooks.

- **Data** – Contains the NZ Disclosure workbooks:
    - *Electricity-distributors-information-disclosure-data-20082012.xls*: input of the Stata program *NZasset1.do*.

- *Electricity-distributors-information-disclosure-data-2013-2018.xlsx:* input of the Stata program *NZasset2.do*.
- *Electricity-distributors-information-disclosure-data-2019-2023.xlsx:* input of the Stata program *NZasset3.do*.
- *EDB_ID__2022-2024__2024.05.01.xlsx:* input of the Stata program *NZasset4.do*.

- **Programs** – Contains five Stata programs, each designed to extract and manage the NZ data.
  - *NZasset1.do*: generates the output files *NZasset1.log; nzasset1.xlsx, nzasset1.dta.*
  - *NZasset2.do*: generates the output files *NZasset2.log; nzasset2.xlsx, nzasset2.dta.*
  - *NZasset3.do*: generates the output files *NZasset3.log; nzasset3.xlsx, nzasset3.dta.*
  - *NZasset4.do*: generates the output files *NZasset4.log; nzasset4.xlsx, nzasset4.dta.*
  - The program "*NZasset5.do*" merges the datasets *nzasset1.dta, nzasset2.dta, nzasset3.dta* and *nzasset4.dta*. It generates the output files *NZasset5.log; nzasset5.xlsx, nzasset5.dta.*
- **Outputs** – Contains output folders: *dta*, *log*, and *xlsx*, generated from the Stata programs.
  - The workbook "nzassesst5.xlsx" is the merged dataset and it is pasted in the workbook "Consolidated Data.xlsx", sheet "NZ STATA" (see section 1.4.2 below).
- **Workbook Vector-Well Adjustment** – Adjusts the data for the DNSPs Vector Lines and Wellington Electricity for the periods from 2006 to 2010. The adjusted values are used in the Stata program "*NZasset5.do".*

1.4.2 Capital Price

This subfolder establishes the capital prices for all jurisdictions.

- **Input** – Contains the workbook "*Consolidated Data.xlsx*," which includes the data used to calculate the capital prices for each jurisdiction. Details on the data sources are provided within the workbook and in Attachment A: Opportunities for Refining Current Models, Section 4.1. This workbook serves as input for the Stata program outlined below.
- **Program** – Contains the Stata program "*CapitalPrice.do,"* which sets the capital price. Four different types of capital prices are established and tested in the opex cost function. The distinctions between these capital prices relate to the deflator used (CPI or Net Capital Cost) and the approach for calculating the Benchmarking Tax Liability rate.
- **Output** – Contains the outputs from the "*CapitalPrice.do*" program.

1.4.3 Opex Cost Function

Contains the Stata input files and resulting output files used to estimate the opex cost function, including input substitution variable.

- **Data Mgt** – This folder contains the files used to prepare the data for the econometric analysis. It includes three subfolders:
  - *Input:* Contains the input files, specifically *Australia ABR24 Data - 11Sep2024.xlsx, Quantonomics-AER-NZData-29Aug2024.xlsx* and *Ontario ABR24 Data - 29Aug2024.xlsx,* which contain the jurisdictional data used in ABR24. It also includes *capitalprice.dta,* the dataset generated by the Stata program **"***CapitalPrice.do***"** (see Section 1.4.2).
  - *Program:* Contains the Stata program *m_DNSPopex24_inputsubt.do,* which is used to consolidate the input data.
  - *Output:* Contains the output files generated by the Stata program *m_DNSPopex24_inputsubt.do*. The file *DNSPopex24_InputSubs.dta* is used as the input dataset for the econometric analysis.
- **Econometric Analysis** – This folder contains the input file, the program, and the output files for the opex cost function which includes the input substitution variable.

- **Summary.xlsx**– This workbook presents some of the main results of this econometric analysis, including regression tables, elasticities, the frequency of monotonicity violations, and efficiency scores.

2 Standard Models – ABR24

This folder contains the standard econometric model Stata files based on the ABR24 dataset. These files differ from those in the ABR24 supporting files, as they include the residual charts for each model.

3 Time Varying Models

This folder contains all files used in the analysis for Sections 4, 5 and 6 as well as Appendix B and C of the Phase 2 Report and Attachment B. This folder is organised into two subfolders:

3.1 Frontier Economics' Model

Contains the replication of the model presented by Frontier Economics. This model is discussed in Section 4.1 of the Phase 2 Report and in Section 1 of Chapter 1 of Attachment B.

3.2 Time Varying Models

Contains the Stata files of the time-varying models and specifications tested, including those presented in Attachment B and the Phase 2 Report, as well as other unsuccessful models that were not included in the report. There are 3 sub-folders and a Stata Project file:

Input

Contains the input files for the Stata programs:

- DNSPopex24.dta – dataset from ABR24.
- OPFP-comparison-7Aug2025.xlsx – contains the efficiency scores from ABR24 and the Opex MPFP values. This file is used in the Stata program (anOPFPcorr3.do) that calculate the correlations between efficiency scores and Opex MTFP and Opex MTFP efficiency measure (see next subsection).

Programs

The Stata program filenames correspond to the specific models tested. The Stata programs containing the models from Phase 2 and Attachment B are:

- anOpexReg24-SFA-BC95-JTT-HN.do
- anOpexReg24-SFA-Kumb90-JTT-HN.do
- anOpexReg24-SFA-Kumb90-JTT-HN-GTC.do
- anOpexReg24-SFA-Kumb90-AJTT-HN.do
- anOpexReg24-SFA-Kumb90-AJTT-HN-GTC.do
- anOpexReg24-SFA-Kumb90-AJTTnz-HN.do
- anOpexReg24-SFA-Kumb90-AJTTnz-HN-GTC.do
- anOpexReg24-SFA-4Comp.do
- anOpexReg24-LSE-ADTT.do
- anOpexReg24-LSE-ADTT-GTC.do
- anOpexReg24-LSE-AJTT.do
- anOpexReg24-LSE-AJTT-GTC.do
- anOpexReg24-fecss.do
- anOpexReg24-fecss-GTC.do

The Stata programs containing the models that were not included in the report are:

- anOpexReg24-SFA-BC95-JTT-HN-GTC.do
- anOpexReg24-SFA-BC95-JTT-HN-hY.do
- anOpexReg24-SFA-BC95-JTT-HN-GTC-hY.do
- anOpexReg24-SFA-BC95-AJTT-HN.do
- anOpexReg24-SFA-BC95-AJTT-HN-GTC.do
- anOpexReg24-SFA-BC95-AJTT-HN-hY.do
- anOpexReg24-SFA-BC95-AJTT-HN-GTC-hY.do

In addition, the Stata program "*anOPFPcorr3.do*" was used to calculate the correlation between efficiency scores and Opex MTFP and Opex MTFP efficiency measure presented in Section 5.1.7 of the report.

TimeVaryingModels.stpr

The Stata Project file *TimeVaryingModels* consolidates all Stata programs.

Output

Contains the folders *log*, *chart*, *docx*, and *xlsx*, which include the outputs files from each Stata program.

3.3 Time Varying - Sensitivity Analysis

The successful time-varying models are also estimated using more restricted datasets, specifically for the periods 2006–2019, 2006–2020, 2006–2021, and 2006–2022 as well as the most recent dataset for 2006–2024. The models are LSE-AJTT; LSE-AJTT-GTC; SFA-BC95-JTT-HN; SFA-Kumb90-AJTT-HN; SFA-Kumb90-JTT-HN and SFA-Kumb90-JTT-HN-GTC. For the 2006–2024 dataset, three additional models were also tested: LSE-ADTT, LSE-ADTT-GTC, and SFA-Kumb90-AJTT-HN-GTC.

These estimations are saved in this folder, and the results are discussed in Section 5.2 of the Phase 2 Report.

3.4 Calcs & Tables & Charts

This folder contains the calculations, chart, and table generation used throughout the report. Specifically:

- Half Normal – Efficiency Scores.xlsx: Contains the charts used in Section 3.1.
- Elasticities – Time-Varying Models.xlsx: Contains the charts used in Section 5.1.3.
- Efficiency Scores – Time-Varying Models.xlsx: Contains charts and tables on efficiency scores, used in Sections 4 and 6.1.
- Decomposition Charts.xlsx: Contains the charts used in Section 6.2.
- BRFM – Time-Varying Models.xlsx: Contains the calculations for the Benchmarking Roll Forward Models for each of the promising time-varying models. These results are discussed in Section 6.3.
- Correlation Elasticities (folder): Contains the Stata programs used to generate the elasticity correlation charts presented in Appendix B.

4 Attachments

This folder contains two PDF documents:

- *Attachment A – Opportunities for Refining Current (1 Oct 2025):* Presents the detailed results for the models discussed in Section 3, "Preliminary Assessment: Options to Refine Current Models" of the main report.
- *Attachment B – Time-Varying Models (1 Oct 2025):* Presents the detailed results for the models discussed in Section 4, "Feasibility of Time-Varying Inefficiency Approaches" of the main report.