Application of forecasting frameworks in Eskoms' Value chain

Venue: John Maree Auditorium, EAL, Midrand

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Delivered By: RT&D

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- Estimation, Prediction and Forecasting
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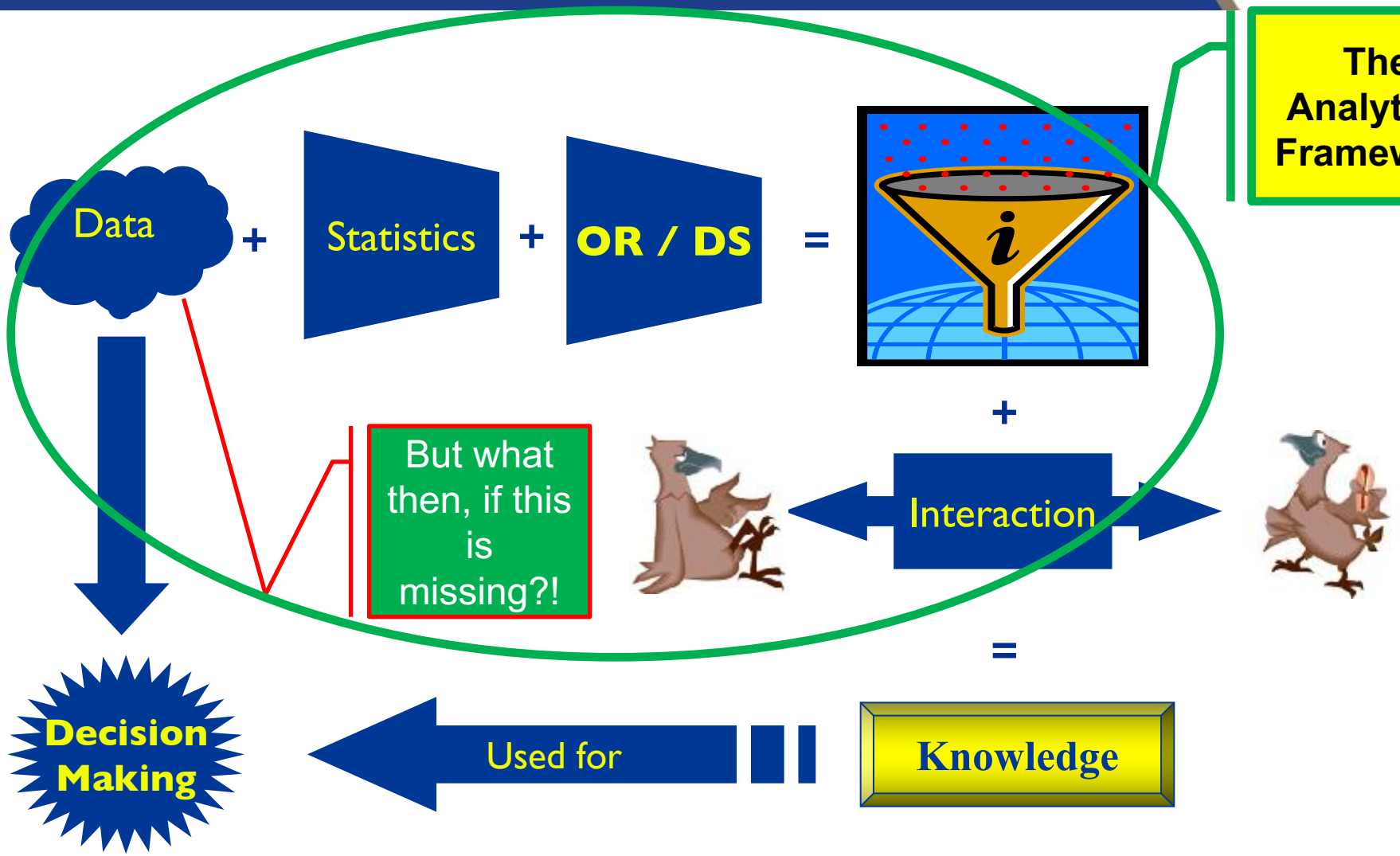
Introduction

Estimation, prediction and forecasting are terms that are often interchanged in discussions over tea or decision making platforms.

This presentation introduces these terms and then aims for the forecasting one.

Subsequently, the presentation focuses on the complex methodologies required in forecasting energy and demand, in a vertically integrated utility, with particular attention to Eskom. The integrating aspects in the consolidation of the forecasts are also highlighted in the presentation

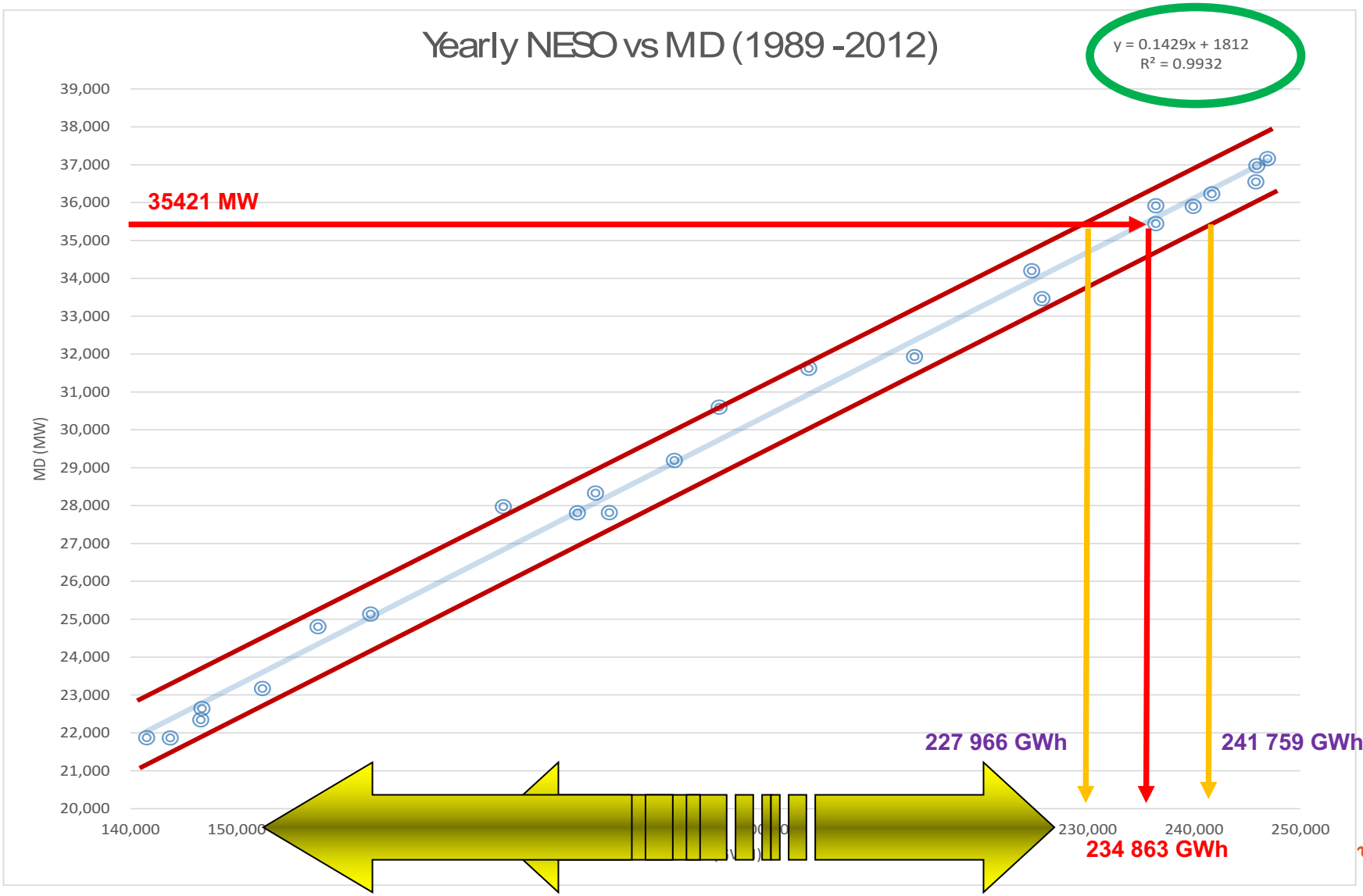
USUAL Data-to-Decision Making (D2D) Process



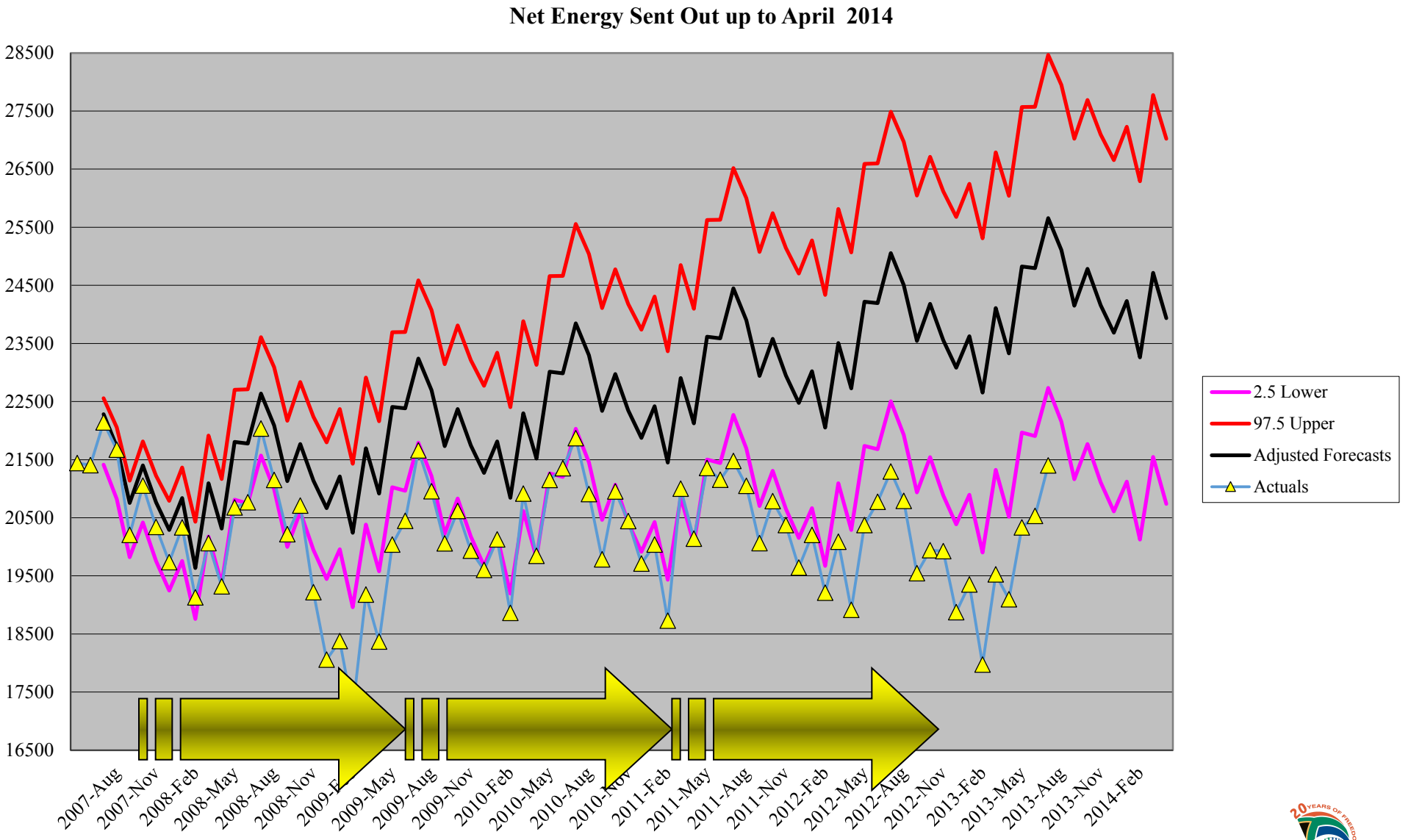
Estimation, Prediction and Forecasting

- **Estimation**
  - **Estimating parameters**: Mean rainfall in Mpumalanga, Standard deviation of that rainfall. The Intercept and Slope of a ESO – MD relationship. The Weights of a multiple linear relationship between CV and a set of other indicators (e,g, abrasiveness, volatiles, ash,…) in coal, etc…
- **Prediction**
  - **Predicting an outcome**, given some information: given a certain function and the Mlitres water consumption, we predict the ESO (MWh)
- **Forecasting**
  - **Predicting in the Time domain**: forecasting the quarterly GDP

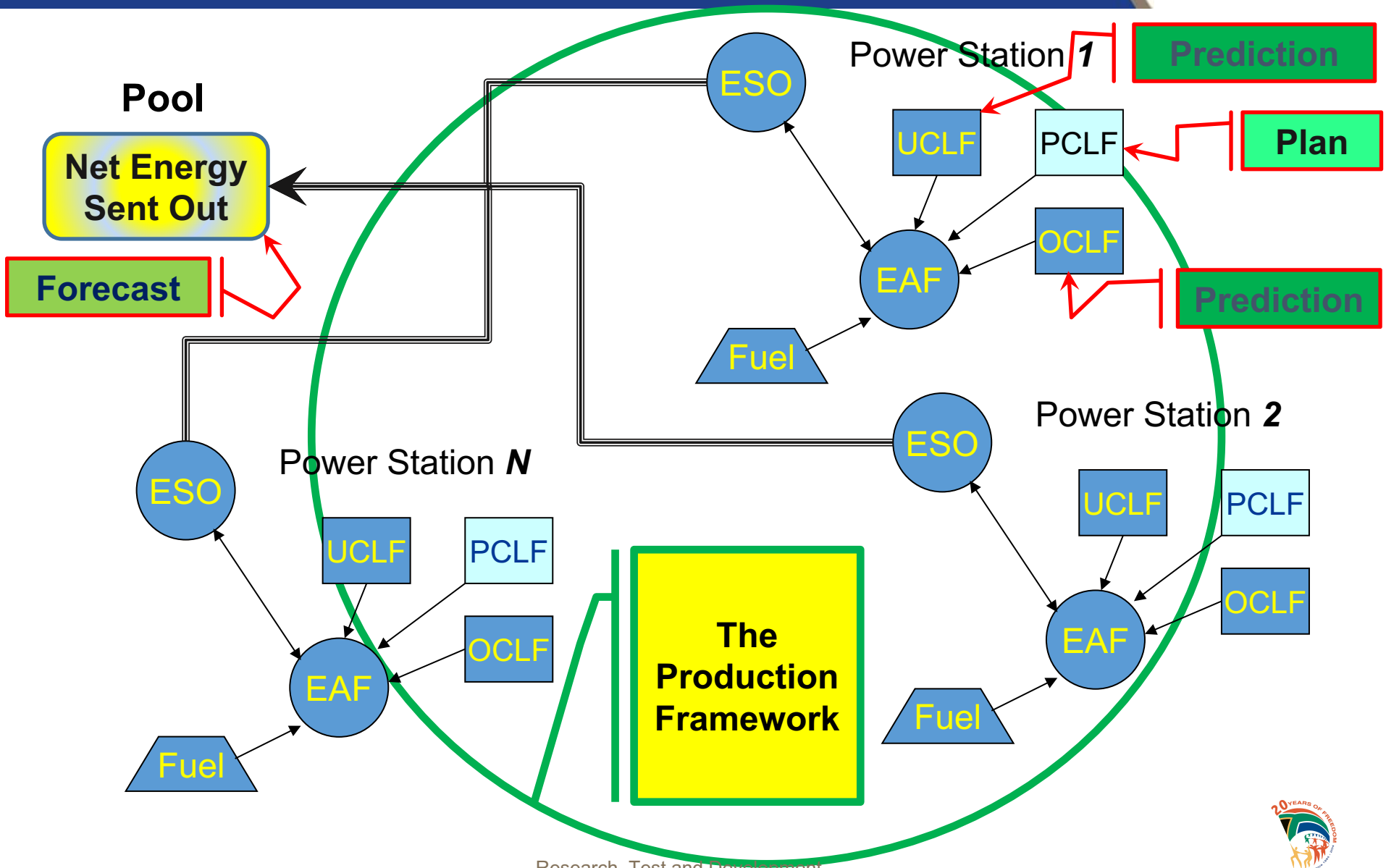
Prediction after Estimating the parameters



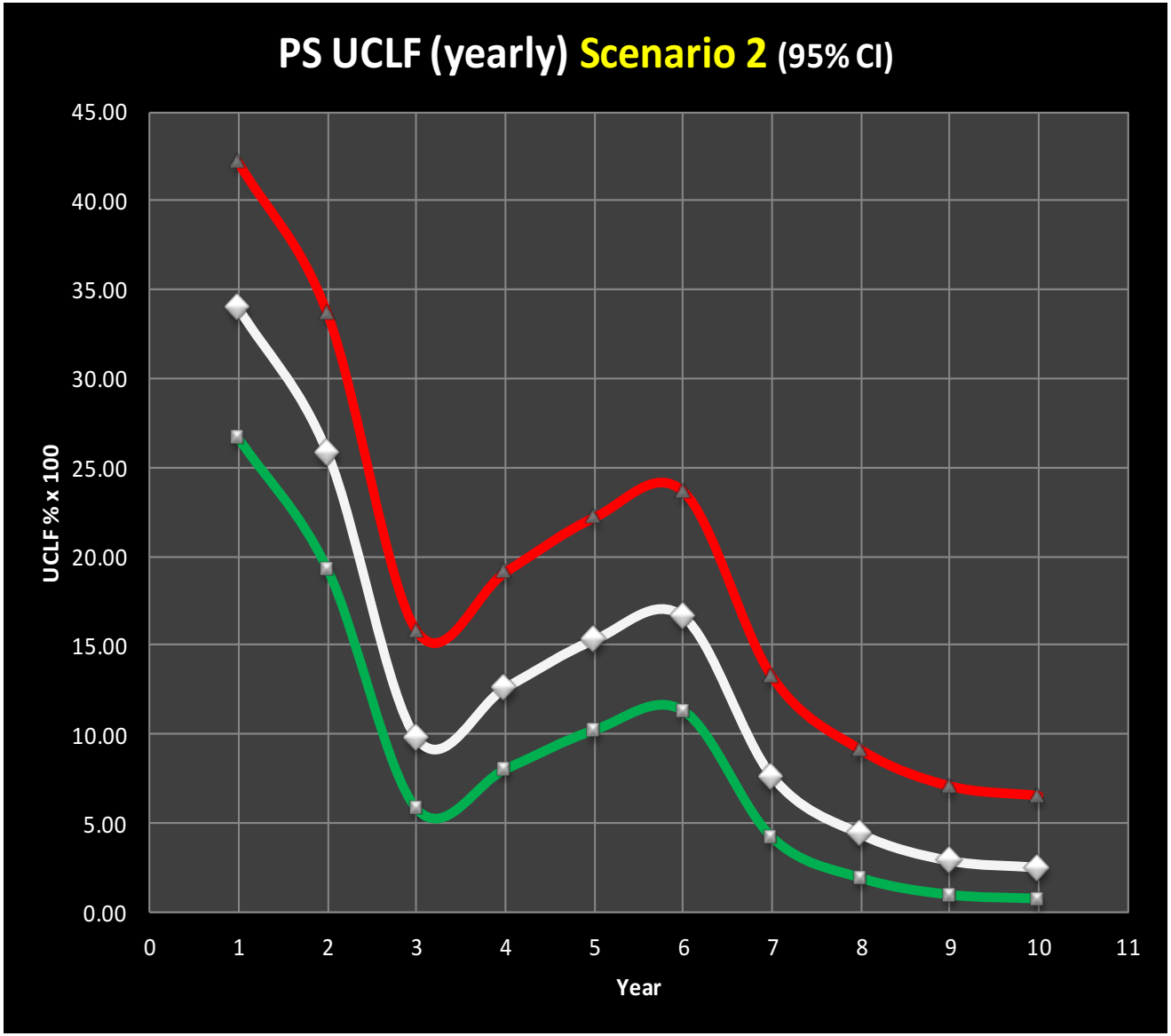
NESO Actuals vs 2007 Forecasts (monthly MWh)



EAF = 100 – UCLF – PCLF – OCLF
NESO ~ LF = EAF . EUF

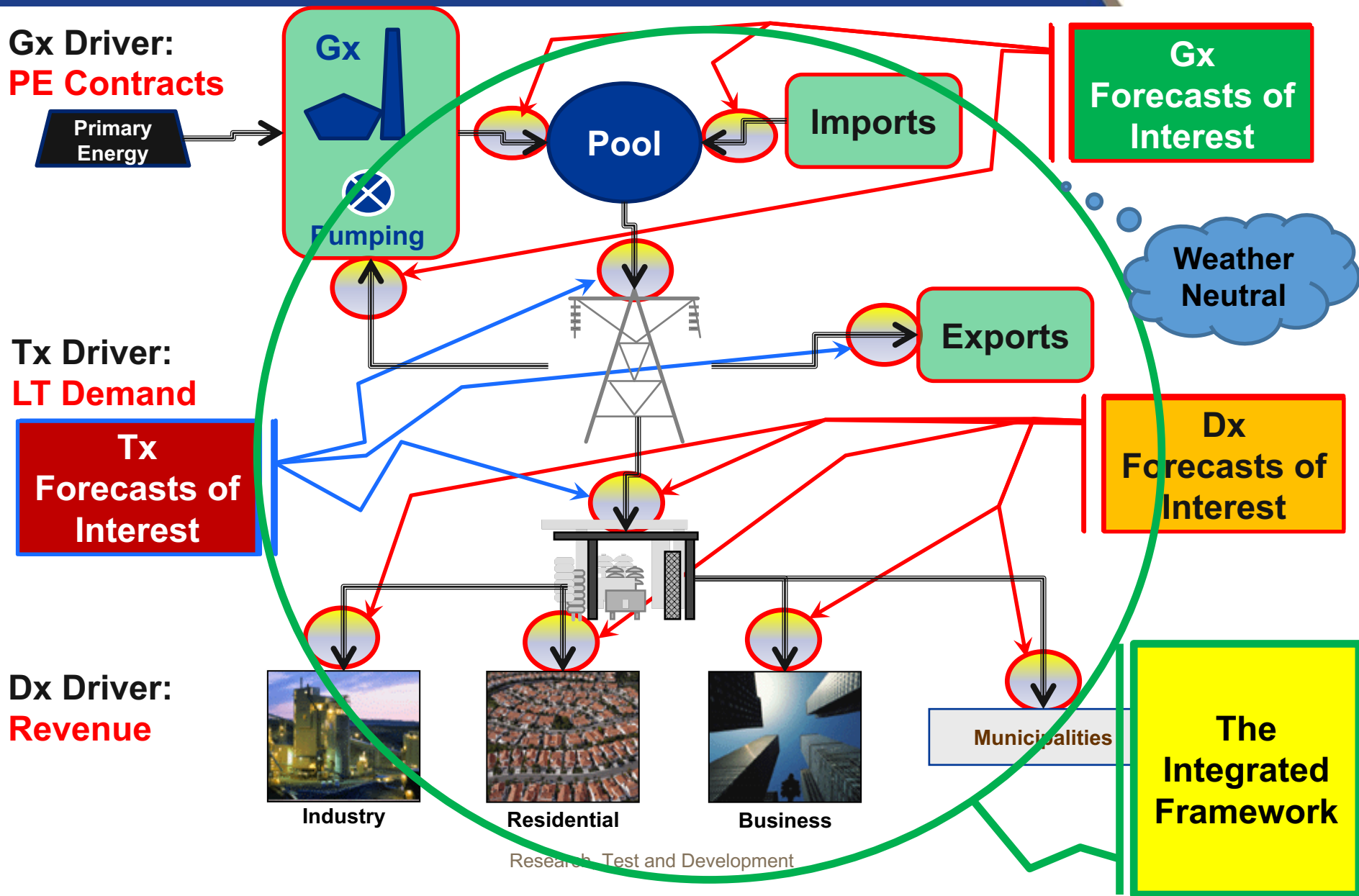


Example (not real) of a “no-data” future Power Station



Energy: Flow & Forecasting Dynamics

Gx + Imp – (Pump + Tx Loss + Dx Loss) = Tx Exp + Dx Sales



Conclusion

- ✓ This presentation was posed from a high level perspective and the statistical (mathematical) models were purposely omitted to illustrate already the complexity of forecasting in the Eskom value chain
- ✓ The nodal forces at work to position the submission of Forecasts play critical roles in the integration of the Forecasts
- ✓ Weather risks play an important part in cautionary statements within the official Forecasts
- ✓ IT IS INDEED A COMPLICATED BUSINESS and the Challenge is to attempt to simplify it as much as possible to the point that IT STILL TELLS THE TRUTH ! (an Einstein's principle)

Thank you

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