IMPLEMENTATION OF INDEX-BASED APPROACHES TO REGULATION
Comments by Denis Lawrence

- Data requirements
- Data collection
- Measurement techniques
- Important criteria
- Conclusions

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DATA REQUIREMENTS

☞ **Basic data required is the *same* for *all* techniques (TFP, MTFP, DEA, SFA, cost functions)**

☞ **Price and quantity (or value and quantity) data needed for each major output and input category and data on key operating environment characteristics (customer mix, customer density, geographic and climatic variables, pests, etc)**

☞ **Main issue for networks is specifying appropriate outputs – demand side versus supply side approaches**

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OUTPUTS

☞ **Move from measuring output by GWh sold to also including customer numbers and reliability but this favours urban distributors as still demand side model**

☞ **Can have network capacity, customers and reliability but this favours rural distributors (supply side)**

☞ **Form comprehensive output measure from GWh, network capacity and customers**

☞ **Goes part way towards adjusting for operating environment differences**
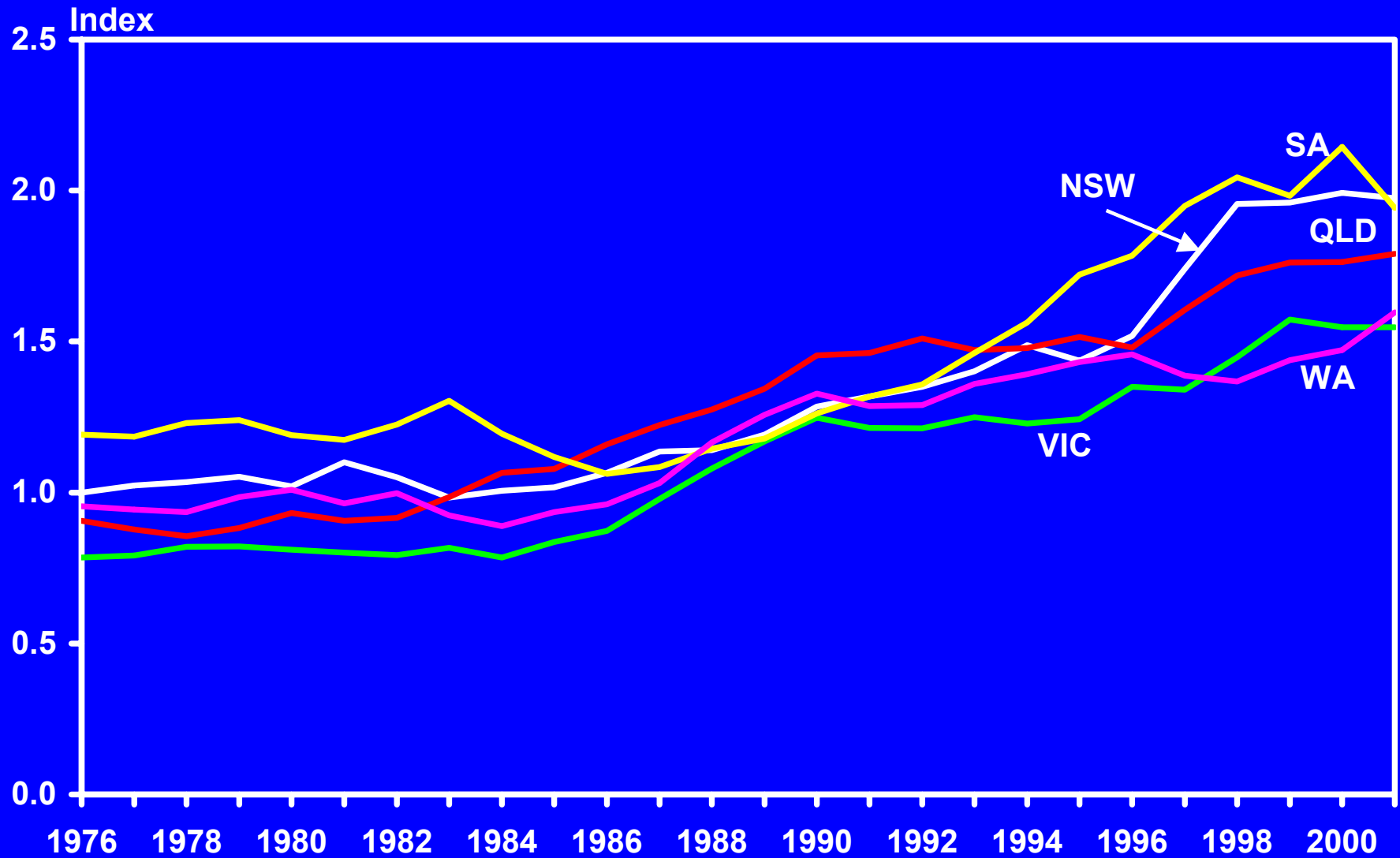
INPUTS

☞ **Usually have labour, materials and services and capital**

☞ **Capital measurement is the main problem**

☞ **Can use physical or financial measures to proxy the quantity of capital used**

☞ **Most recent distribution TFP study uses 6 inputs: labour in FTEs, materials and services in constant prices, transformers in KVAs, overhead lines in MVA kms, underground lines in MVA kms, other assets in constant prices**
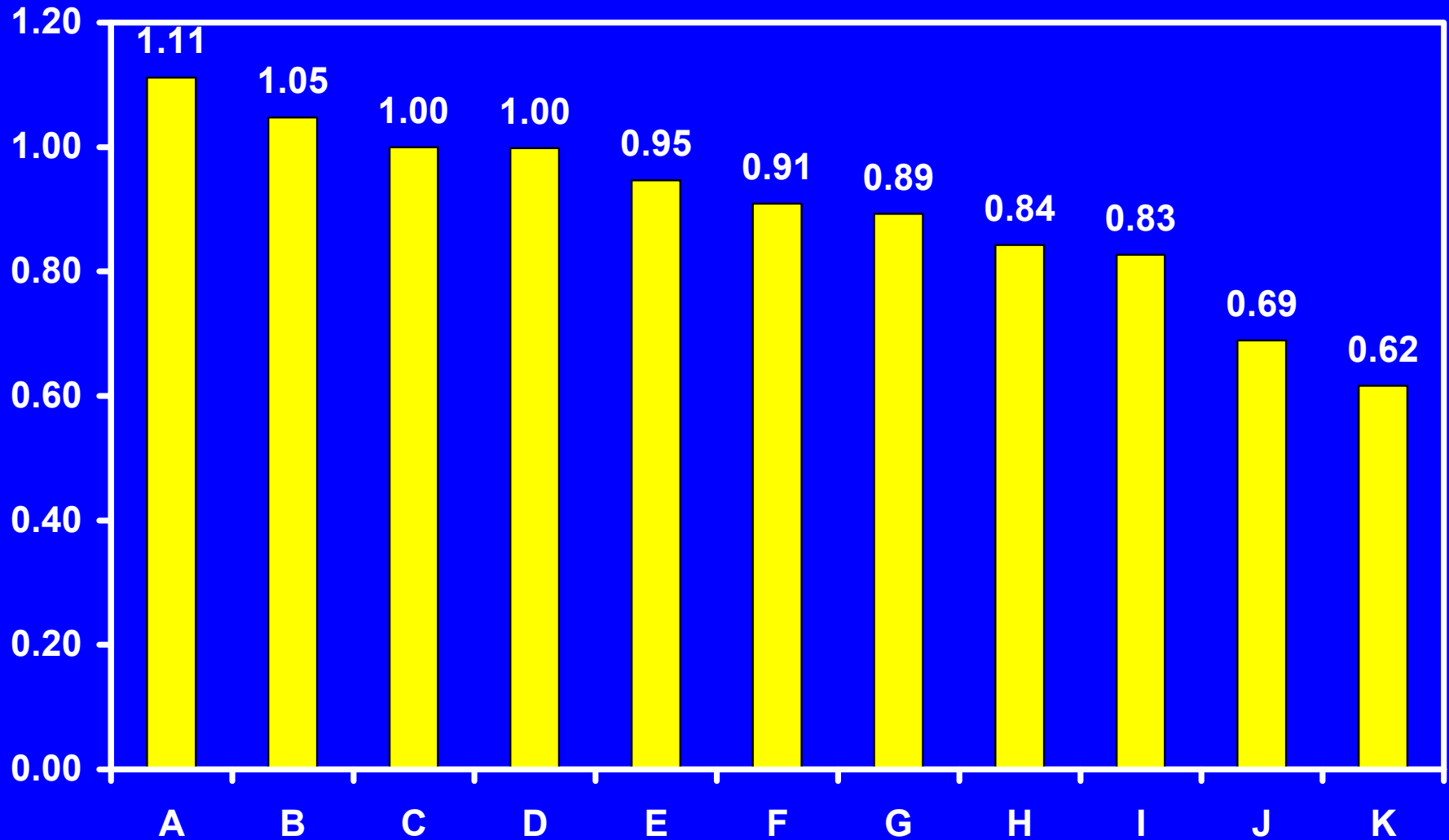
Australian ESI Output, Input & TFP Indexes
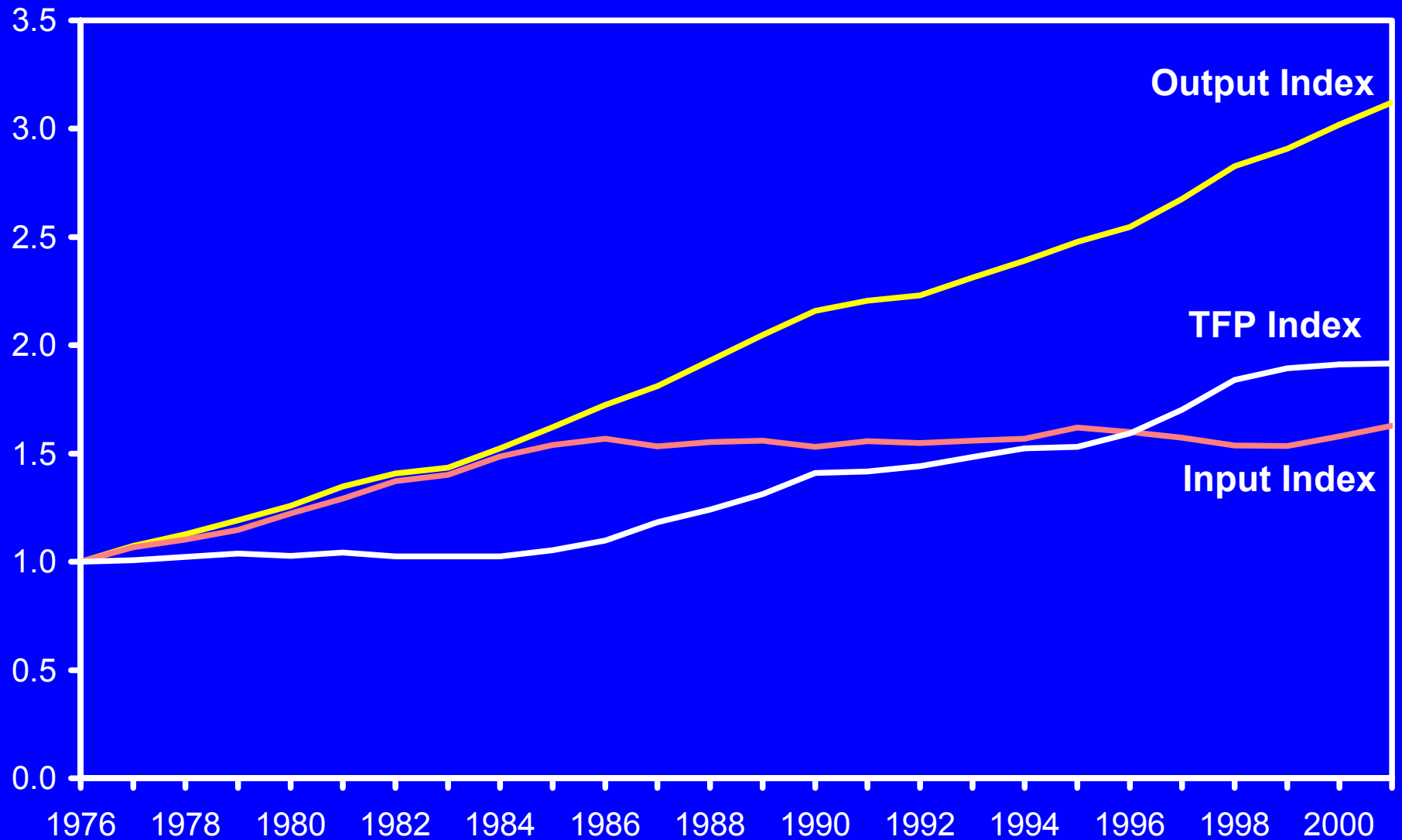
Australian State ESI TFP Indexes

Australian Distributor TFP Indexes

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DATA COLLECTION

- Less onerous than building blocks approach
- 80/20 rule – Pacific Power TFP example
- URF service quality data exercise is good role model
- Recommend definitions for key outputs and inputs
- Retain scope for jurisdictions to make some variations to reflect own circumstances
- Who holds the data? Regulator(s), consultants or ESAA?

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MEASUREMENT TECHNIQUES

☞ **All techniques have their advantages and disadvantages**

☞ **TFP and MTFP are robust, transparent and can be applied to small data sets but do not support statistical tests**

☞ **DEA gives lots of information but seduces analysts into forgetting about data quality and consistency – it also requires a large data set**

☞ **SFA and cost functions provide statistical tests and can directly incorporate operating environment information but require large data sets and do not always score well on transparency and reproducibility**

☞ **Best to use more than one technique**

DESIRABLE CRITERIA

- Are all major outputs and inputs included?

- Are all outputs and inputs adequately specified?

- Have the key stakeholders been consulted on model specification and data accuracy?

- Have operating environment differences been allowed for?

- Are the data accurate, consistent and comparable?

- Is the modeling transparent and the data accessible?

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CONCLUSIONS & ISSUES

☞ **Ensure basic data is available to keep options open – don't repeat the mistakes of the past**

☞ **URF service quality statistics model is a good way to go in developing recommended definitions**

☞ **Advantages in ensuring data is available to all interested parties**

☞ **"never underestimate the symbolic importance of actually doing *something*"**

☞ **It is only by making a start that progress will be made**

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