

# Performance Based Regulation of Philippines Electricity Distribution Companies

## REGULATORY TRAINING COURSE

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### SESSION 4B: CAPITAL EXPENDITURE FORECASTING



# Overview

This presentation will consider:

- Types of expenditure that can be included as CAPEX in the revenue application;
- Preparation of the CAPEX forecast;
- Justification of forecast CAPEX;
- The expenditure review process;
- Issues that arose at the first entry point including:
  - potential for double counting of expenditure; and
  - value added tax.

# Regulated and Unregulated Expenditure

- Expenditure can be categorized as:
  - Regulated or unregulated
  - Capex or opex.
- For the purposes of the PBR process, regulated expenditure includes ONLY expenditure that:
  - is required for the *efficient* provision of regulated distribution services; *and*
  - cannot be legally recovered from any source other than through the regulated distribution wheeling rate.
- Only regulated expenditure can be included in the ARR forecast.
  - An important component of the expenditure review is ensuring that any unregulated expenditure is removed from the forecast.

# CAPEX and OPEX

- CAPEX is regulated expenditure for the *creation* of assets required for the provision of regulated distribution services.
- Asset creation includes:
  - provision of new assets;
  - replacement or renewal of existing assets; and
  - refurbishment of existing assets (so that their remaining economic life is increased beyond normal expectation, or their service capacity is increased).
- CAPEX is recovered over the life of the asset, through regulatory depreciation.
- OPEX includes all other regulated expenditure required for the provision of regulated distribution services. It is fully recovered in the year in which the expenditure is incurred.

# Costs to be Included in Capex Forecast

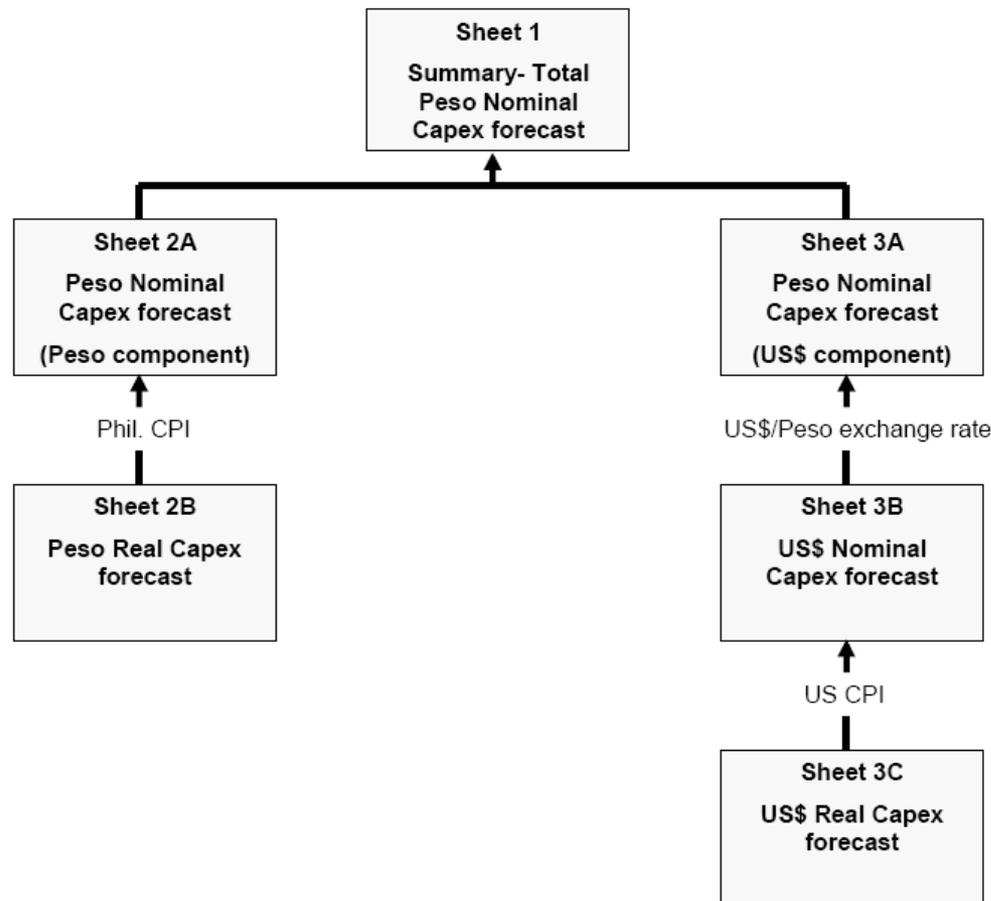
- The costs of asset creation include:
  - Detailed design (but not preliminary design or planning);
    - Typically the point at which project costs transition from opex to capex is the point at which a firm decision to proceed is made.
  - Equipment procurement costs;
  - Freight and transport costs;
  - Storage costs;
  - Construction and installation costs;
  - Commissioning costs; and
  - Overhead costs associated with the above activities.
- This approach is consistent with generally accepted accounting principles. However it not always consistent with utility accounting systems and this creates a risk of double counting.

# Preparation of CAPEX Forecasts

- Individual CAPEX forecasts are required for:
  - Each individual significant project (projects with an estimated cost > PhP 50 million or 30% of total annual capex);
  - Residual network growth related expenditure;
  - Residual network renewal related expenditure;
  - Residual network refurbishment related expenditure; and
  - Non-network expenditure.
- ERC will provide utilities with templates for individual capex forecasts.
  - These templates are designed to so that they are compatible with the input requirements of ERC's regulatory model.
  - A separate forecast template is required for each individual forecast.
  - Individual forecasts are reviewed separately and the individual forecast expenditures are then aggregated for input into the model.
- Each individual forecast has two components:
  - PhP component – for costs that are incurred within the Philippines:
  - US\$ component – for costs of imported equipment paid for in foreign currency.

# Preparation of CAPEX Forecast (cont'd)

- Real peso and US\$ forecasts are then escalated and aggregated to give a nominal peso forecast. ERC current algorithm is shown below.

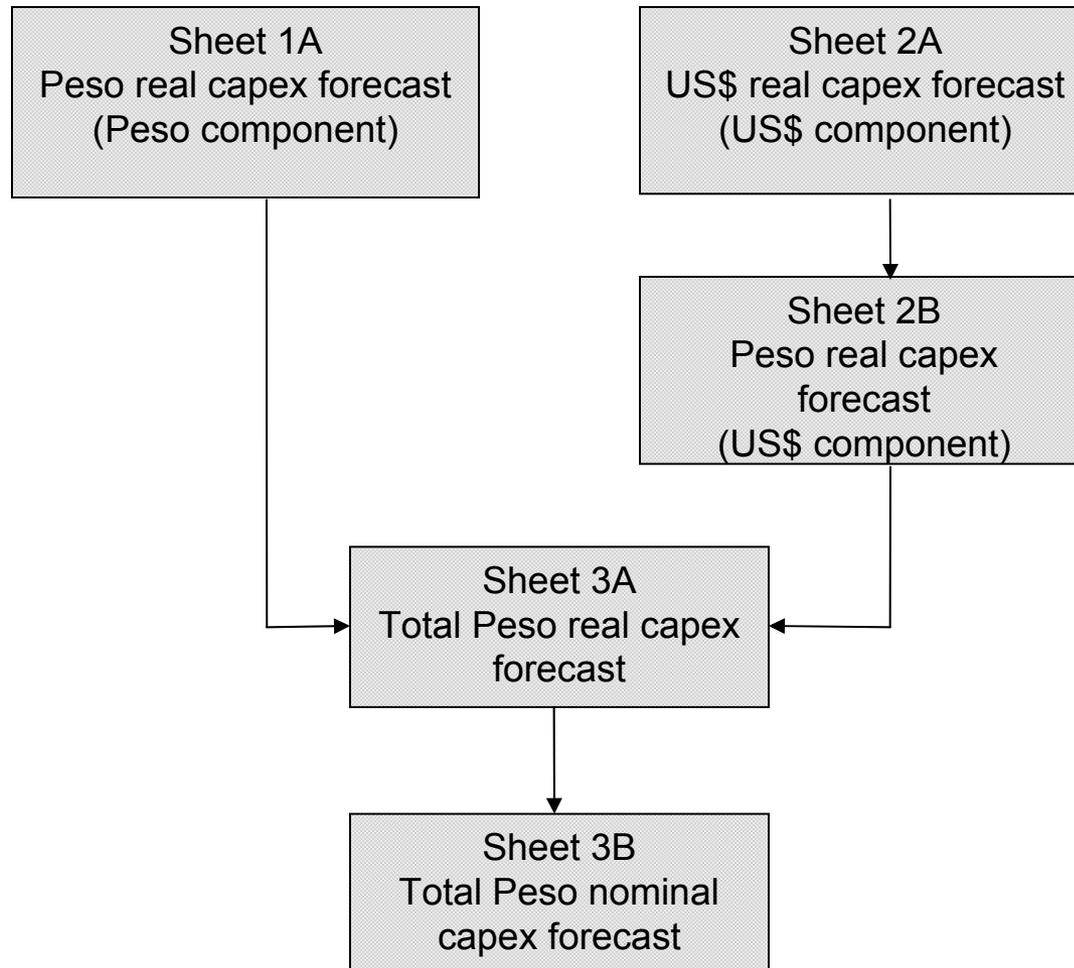


# Preparation of CAPEX Forecast (cont'd)

- During expenditure review, it was found that :
  - This escalation algorithm complicates the review process
    - It does not produce a real PhP forecast that includes both local and imported components
    - A real PhP forecast is required to test that forecast costs are not excessive and to permit valid comparisons of expenditure in different regulatory years.
- Proposed change in escalation algorithm - real US\$ costs are converted to PhP at current exchange rate
  - Local and foreign costs then aggregated to total real PhP forecast
  - Escalated to nominal forecast (using forecast Philippine inflation rates)

# Preparation of CAPEX Forecast (cont'd)

## Proposed new escalation algorithm



# Justification of Individual Capex Forecasts

- Each individual project forecast should be accompanied by a separate capex justification
- For significant projects, the justification could include:
  - A single line diagram;
  - A schedule showing the quantities and capacities of major primary system assets (if this is not apparent from the single line diagram);
  - A descriptive summary of the need for the project, the reason why the proposed solution is considered efficient and the basis for the proposed plant capacities. This could include a quantitative analysis of system performance with and without the project.
  - A cost breakdown or justification (particularly for lines projects). As part of the review, the consultant is likely to develop its own cost estimates using standard asset valuation costs, and require an explanation of significant variances.
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# Justification of Individual Capex Forecasts

- Individual capex justifications should be prepared by the utility to suit the project characteristics.
  - The ERC's major project template serves as basis, but more information should be attached.
  - Individual major project budgets should be shown on a standard capex forecasting template as this assists consolidation.

## Justification of Individual Capex Forecasts (cont'd)

- A justification is also required for each individual residual capex forecast (growth, renewal, refurbishment and non-growth).
- First entry point utilities generally did not cover this well, which made the review more difficult
- Residual capex forecast justifications should:
  - Include the basis for deriving the forecast for each line item and reflect the reasoning used by the utility to derive the line item forecast.
  - Where appropriate, provide asset quantities or aggregate asset capacities.
  - In general, be quantitative and as specific as possible. For example, growth capex could relate to forecast load growth and increase in customer numbers. Renewal capex should relate to age profiles and / or historic levels of renewal.
  - Sufficient information should be provided to allow reviewers to assess whether the asset quantities is reasonable and costs are efficient.

# Capex Forecasts - Miscellaneous

- Utilities may treat projects valued at <PhP 50 million as significant and include individual project costing and justification.
  - This would be appropriate for unusual or one-off projects.
  - The residual capex forecast is designed to accommodate smaller projects involving repetitive assets, where individual project analysis is impractical.
  - Costs of smaller projects treated in this way should be shown on a separate template and NOT included in the residual project template.
  - The level of justification in these cases should be commensurate with the size and cost of the project.
- Forecast costs must be shown in the year in which an asset is commissioned rather than the year in which the expenditure is incurred.
  - Costs relating to a single project can only be spread over two or more years if the project is commissioned in stages.
  - The ERC's CWIP factor accounts for the financial impact of any delays between expenditure and commissioning.

## Capex Forecasts – Miscellaneous (cont'd)

- Expenditure on materials and supplies (including spares) should equal the difference in inventory levels between the beginning and end of the period.
  - This should reconcile with the summary asset base data template.
- Transferred subtransmission assets should be valued at:
  - the proposed purchase price if this has been agreed with TransCo; or
  - the depreciated replacement cost of the asset.
- The submission must provide a detailed description of any allocated overheads capitalized and the basis on which these allocations have been derived.
  - The review will need to be satisfied that these costs are not also included in the opex forecast.

# CAPEX Expenditure Review - Objective

- The CAPEX review is intended to ensure that the capital expenditure forecast:
  - includes only *regulated* expenditure;
  - includes only expenditure *necessary* for the provision of regulated distribution services of a quality that meets customer expectations and the requirements of the Philippines Distribution Code;
  - includes only expenditure on assets that represent a *technically efficient* solution to the identified need;
  - is *cost efficient* in that only the minimum reasonable costs of asset creation are allowed; and
  - does not include costs that are also provided for in the OPEX forecast.

# Significant Project Expenditure Reviews

- Significant projects are each individually reviewed.
- Review will consider:
  - whether there is a need for the project given the existing load on the network and the forecast growth in load and customer numbers;
  - whether the preliminary design on which the project costs have been estimated represents an efficient way of meeting that need;
  - whether assumed plant and equipment capacities are reasonable;
  - whether the timing of the project assumed in the forecast is appropriate; and
  - whether the estimated project costs are reasonable. It is likely that the standard asset replacement costs used for the asset valuation will be the benchmark for determining reasonable project costs.
- It follows that a robust justification will be expected if forecast project costs are significantly different from those indicated using standard asset valuation replacement costs.

# Residual Capital Expenditure Reviews

- Historic nominal residual capex will be inflated to current real costs to provide a benchmark for the review.
  - Inflation will be on the basis of historic Philippines CPI.
- Review is likely to focus on:
  - line items where expenditure is a material component of the total forecast;
  - line items where expenditure levels change significantly from historic levels.
- Where a justification is provided for a forecast line item, this will be the starting point for the review.
  - A reviewer is unlikely to modify a utility forecast if there a robust justification that can withstand critical examination.
- Where no justification is provided the reviewer will make an independent assessment based on all the information available including:
  - historic expenditure levels and growth rates;
  - available cost information, particularly asset valuation replacement costs; and
  - the reviewers own experience and engineering judgement.
- More satisfactory outcomes from (a utility perspective) are likely where the utility is open with the regulator and provides robust justifications for all expenditures.

# Double Counting

- Typically CAPEX forecasts are based on “bottom-up” forecasts developed by aggregating desk-top estimates of the procurement and installation costs of individual assets.
- In contrast, OPEX forecasts are “top-down” forecasts developed by projecting forward historic costs, which are normally actual costs in a historic test year (after these costs have been reviewed for efficiency).
- If component costs of the aggregated desk top CAPEX forecast are normally treated by the utility as OPEX, there will be an overlap between the two forecast and some double counting of these overlapping costs may result.

## Double Counting (cont'd)

- Costs that could overlap include:
  - detailed design (planning and design costs not split between capex and opex);
  - construction and installation (particularly when undertaken by in-house labor that also does maintenance work);
  - construction supervision and commissioning;
  - transport and storage.
- Identifying and removing any double counted costs is an important part of the expenditure review.

# Value Added Tax

- Prior to implementation of RA 9337, customers did not pay VAT on their electricity accounts, but a utility was still required to pay VAT on some of its inputs.
  - VAT paid by the utility therefore had to be recovered from the distribution wheeling rate.
  - It was appropriate to include VAT on the relevant components of the standard replacement costs used for asset valuation.
- Hence the asset valuation prepared for the first entry point *included* VAT.
- Now any VAT paid by a utility on its inputs can be recovered from the VAT paid by customers on their electricity accounts.
  - VAT no longer has to be recovered from the distribution wheeling rate.
  - Expenditure forecasts should *exclude* VAT.

## Value Added Tax (cont'd)

Cost Component	Asset Valuation VAT	Forecast VAT	Comment
Equipment paid for in foreign currency	0%	0%	Prior to RA 9337, imported materials were zero rated for VAT. While these materials are now subject to 12% VAT, this is recovered directly from customers through the VAT paid on their electricity account so need not be included in the revenue requirement.
Locally purchased materials	10%.	0%	A utility is required to pay VAT on local materials. Prior to the implementation of RA 9337, since customers did not pay VAT on their electricity accounts, this cost had to be recovered through the distribution rate. Now this cost can be recovered from the VAT paid by customers.
In-house labour.	0%	0%	A utility does not have to pay VAT on in-house labour costs. With the implementation of RA 9337 customers must now pay VAT on these costs but this is passed directly through to the government.
Contractor labour	10%	0%	VAT is included in the accounts Meralco receives from its contractors. Prior to the implementation of RA 9337, since customers did not pay VAT on their electricity accounts, this cost had to be recovered through the regulated distribution rate. Now this cost can be recovered from the VAT paid by customers.
Stores	0%	0%	This cost is primarily in-house labour.

## Value Added Tax (cont'd)

- If the reviewer is using *VAT inclusive* standard asset replacement costs to benchmark *VAT exclusive* expenditures and adjustment is appropriate.
- For the first entry point review we estimated the total VAT component of standard replacement costs and adjusted these costs downwards for benchmarking purposes.
- Future revenue applications should use *VAT exclusive* costs and be very specific that this is the case.

**Thank You**

Any more questions?