Research on the Influence of National Investment Statistical Accounting Method Reform on Power Grid Enterprises' Investment Management

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Abstract. Investment statistics is an important component of investment management work in power grid companies, connecting investment plans and investment execution analysis, and is an important link connecting the previous and subsequent stages of investment management work. In the current context of deepening the reform of transmission and distribution electricity prices, accurate statistics of fixed assets investment completion plays an important role in consolidating the pricing basis of transmission and distribution electricity prices. This article studies the feasibility of switching between financial expenditure method and image progress method, deeply analyzes the impact of changes in accounting methods on company investment management, investment execution progress, and annual plan completion, and proposes management suggestions.

Keywords: Fixed assets investment statistics, investment management, investment execution

1 Introduction

The General Office of the Communist Party of China and the State Council have successively issued a series of documents, including the "Opinions on Deepening the Reform of the Statistical Management System to Improve the Authenticity of Statistical Data" and the "Opinions on More Effectively Playing the Role of Statistical Supervision"[1]. These documents require strengthening statistical supervision, implementing the requirements of the central government for preventing and punishing statistical fraud, improving the authenticity of statistical data, and making comprehensive arrangements for deepening the reform of the statistical system and improving the authenticity of statistical data.

At the same time, the deepening of the reform of transmission and distribution electricity prices has led to increasingly strict investment in the power grid. On the one

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hand, the reform of transmission and distribution electricity prices promotes the scientific, rational, and effective investment in the power grid; On the other hand, the three-year supervision cycle of transmission and distribution electricity prices is inconsistent with the annual investment plan cycle, and the construction and capital transfer cycles of projects with different voltage levels are inconsistent. It is urgent to plan ahead, improve the overall planning ability of investment arrangements, ensure the timely formation of effective assets, and promote the high-quality development of the company and the power grid[2].

In order to further standardize the investment statistics and complete the investment, in October 2022, the National Bureau of Statistics (NBS) issued the National Bureau of Statistics Fixed Asset Investment Statistical Report System (2022 Statistical Annual Report and 2023 Regular Statistical Report) (Guo Tong Zi [2022] No. 90), which clarified that the financial expenditure method based on accounting vouchers such as accounting records is the main method of national fixed asset investment statistics. In order to ensure the smooth transition of data, in accordance with the principle of consistency of statistical methods during the project construction period stipulated by the National Bureau of Statistics, the State Grid Corporation of China has accordingly issued a series of documents such as the Notice of the State Grid Corporation of China on Further Standardizing the Statistics of Fixed Asset Investment (State Grid Development [2022] No. 697) and the Notice on Further Strengthening the Management of Financial Expenditure on Fixed Asset Investment (State Grid Cai [2023] No. 70), which clarifies that the company's new projects will be counted by the financial expenditure method from 2023. The continuation project still follows the image progress method for statistics, and the differences will be naturally digested after the project is put into operation one after another. Therefore, it is of great significance to study the impact of the financial expenditure method and propose countermeasures and suggestions to ensure the smooth transition of investment statistics in the financial expenditure method, and orderly implementation of investment plans.

2 Feasibility Analysis of Switching Between Financial Expenditure Method and Image Progress Method

The "Financial Expenditure Method" puts more emphasis on "counting with evidence, direct collection, and elimination of calculation". Compared with the "Image Progress Method", the completed investment amount calculated by the Financial Expenditure Method is based on financial expenditure, and directly uses the cost data entered into the account of the project for accounting, there is no need to invest in statisticians for secondary processing of data[3]. Specifically, the 2022 latest version of the report system under the Financial Expenditure Method stipulates three types of reporting basis:

- If it is filled in according to the accounting subject, the time of entry is taken as the measurement time point;
- If it is filled in according to the payment voucher, the payment time of the bank bill is the time point of measurement;

1 If it is filled in according to the project settlement sheet or progress sheet, only for construction and installation projects, the time point of the signature of the last party among the owners, supervisors and construction parties is the time point of measurement. The financial expenditure method requires one of the options to be consistently implemented during the duration of the project[4].

Next, analyze the feasibility of switching between the three statistical methods.

2.1 Based on Project Entry Cost

At present, the "Online Grid" platform has realized T-1 accessing to the financial data of the ERP system. If the project entry cost is used as the basis, the "construction in progress entry cost" can be directly taken from the ERP system as the completed amount of fixed asset investment, with simple operation, traceable data and strong feasibility. Therefore, it is recommended to adopt the accounting method based on the entry cost.

2.2 Based on Capital Expenditure

In the accounting method based on capital expenditure, the time point of measurement is the time of payment of bank bills, and there are mainly two problems. First, in the actual implementation process, the time of capital payment usually lags behind the time of financial expenditure, and is far behind the progress of project construction, which will result in a relatively small amount of investment completion and a lag in investment completion progress. Second, due to the procurement model and other reasons, the current power grid company's 10 kV project material procurement mostly adopts the agreement inventory method, and the service procurement adopts the framework contract method. The procurement contract or order cannot be one-to-one with the project, and the detailed items cannot be accounted for. The distribution network projects of 10kV and below do not meet the conditions for the completion of project investment calculated according to capital expenditure. Therefore, it is not recommended to choose an accounting method based on capital expenditure.

2.3 Based on Project Settlement Sheet

The calculation method based on the project settlement sheet or progress sheet is only for the cost of construction and installation projects. The submitting unit is required to provide the current month's project settlement sheet or progress sheet with the signatures and seals of the three parties in a standard format, including the signatures and seals of the three parties, and the specific value of the completed investment amount indicated on the receipt. At present, the company's building installation and construction contracts are usually settled according to the divisional project process, "low frequency and long cycle", which will lead to delays in accounting for engineering service costs and delays in the completion of investment[5]. Therefore, it is not recommended to adopt the accounting method based on the project settlement sheet.

To sum up, considering the current situation of the company's investment management and the feasibility of implementation, it is recommended to carry out fixed asset investment statistics based on the cost of the project entry into the account.

3 Analysis of the Impact of Switching Between Financial Expenditure Method and Image Progress Method

3.1 Impact on Company Investment Management

At the overall level of the company, the switching of algorithms only involves switching the data source of investment statistics from the infrastructure control system to the ERP system. By adjusting the background algorithms, automatic switching between new and old algorithms can be achieved. Therefore, the transformation of investment statistical accounting methods has little impact on the company's statistical management. However, due to changes in the filling basis for investment completion, new requirements have been put forward for the management of various stages of investment execution[6]. Specifically, it includes the following four aspects:

3.1.1 Increased Difficulty in Preparing Company Plans.

Firstly, the scope of investment plan management has expanded and the cycle has been extended. The scope of investment plan management under the financial expenditure method not only includes newly started and continued projects issued by existing comprehensive plans, but also includes carry-forward projects. The investment statistics management cycle extends from the original project putting into operation node to the completion of final accounts.

Secondly, the difficulty of planning has increased. The current investment plan of the company is based on project estimation (feasibility study estimate), while under the financial expenditure method, the investment plan should refer to the contract price (project final settlement amount). However, when preparing the annual investment plan, the project has not yet started bidding, so higher requirements are put forward for the preparation of the investment plan.

3.1.2 Strict Requirements for Control of Budget Execution Process.

The finance department prepares the annual investment budget based on the annual investment plan provided by the development department, but the financial budget and investment plan are not linked in the system for integrated management. When the investment plan is adjusted, the finance department cannot make timely adjustments to the investment budget; Changes in statistical accounting methods have a higher impact on the accuracy of financial budgets, therefore it is necessary to further strengthen engineering budget control.

3.1.3 More Precise Control Over the Entire Process of Engineering Construction.

During the project construction process, it is required to strictly follow the project milestone plans, but the milestone planning nodes are generally coarse, cannot meet the requirement of reflecting the actual construction progress through investment completion under the financial expenditure method. Therefore, it is necessary to further refine the control nodes on the basis of the milestone plan nodes, optimize the project quantity confirmation process, and improve the efficiency of engineering settlement.

3.1.4 Higher Requirements for Control of Financial Cost Accounting.

1. Higher requirement for timely recording of service costs: Financial cost recording is constrained by conditions such as bill circulation and fund collection, and the recording progress does not match the actual construction progress of the project. Therefore, it is necessary to strengthen the correlation between investment statistics and engineering construction progress, timely monitoring, and timely accounting.

2. Higher requirements for the process control of project material costs: Material expenses are recorded immediately after outbound, the actual material delivery operation not timely and the material cost still recorded after the project is put into operation will all lead to deviation in investment completion based on cost accounting statistics. so it is necessary to strengthen control over project material outbound and return.

3.2 Impact on Investment Execution Progress

For a single project, the investment completion progress calculated based on the financial expenditure method and the image progress method varies to some extent in various stages such as pre construction, civil engineering, equipment installation, commissioning, production, settlement, and final accounts[7]. Taking the theoretical curve of investment completion progress of substation project under the new and old algorithms as an example (see Figure 1), the main differences include the following three aspects:

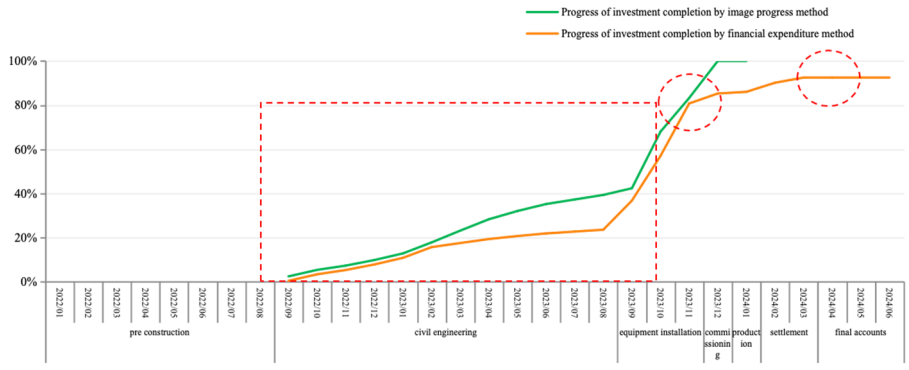

Fig. 1. Theoretical curve of investment completion progress of substation project under the two algorithms.

3.2.1 Difference in Investment Progress During Project Construction Process.

Due to changes of statistical basis, operation occurs before the account is recorded. Project cost needs to go through project quantity confirmation, invoice issuance, accounting and other work, resulting in a corresponding lag in investment completion progress calculated using the financial expenditure method during the construction process compared to that calculated by image progress method. At the same time, due to the impact of project process settlement, the investment completion progress under the financial expenditure method is relatively uneven.

Based on the accumulated progress of construction and installation costs for typical 220kV substation projects and overhead line projects, it can be seen that there are large-scale construction costs recorded for the substation project after the completion of civil engineering in the 16th and 22nd months; The overhead line project was recorded on a large scale after the completion of the foundation project in the 16th, 28th, and 30th months (see Figure 2).

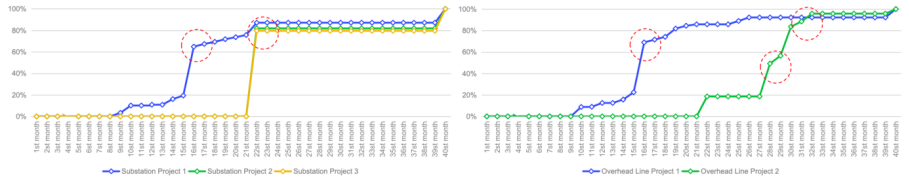

Fig. 2. Accumulated progress of typical project construction and installation costs under image progress method.

3.2.2 Statistical Cycle Difference Generated by Project Settlement and Final Accounts.

The image progress method takes the production time as the statistical endpoint. The financial expenditure method extends from the time when the project is put into operation to the final account as the statistical endpoint; in the settlement stage, the design fee, construction cost, supervision fee and other expenses stipulated in the contract are settled and recorded, and in the final account stage, the remaining audit fee and a small amount of upfront costs are settled and recorded.

3.2.3 Difference in Balance Generated by the Final Accounts Compared to the Estimated Budget.

The current investment plan of the company is based on the project budget, while the actual cost of the project is effectively controlled through measures such as material bidding and budget control, so the final account amount of the project is generally less than the budget estimate. Affected by the surplus of the company's power grid infrastructure project (calculated at an average surplus rate of 14% in 2022), the investment plan issued by the financial expenditure method based on the estimated budget of the project will face the risk of not being fully completed by 100%.

3.3 Impact on Plan Execution Progress

Taking the 2022 power grid infrastructure project of company A as the object, in 2022 the plan completion rate calculated using the financial expenditure method is 94.08%, which is 5.69 percentage points lower than that calculated using the image progress method. Among them, the main network project has a faster completion rate calculated using the financial expenditure method, while the distribution network project has the opposite trend.

From a monthly perspective, the plan completion rate calculated using the financial expenditure method is relatively close to the image progress method, the growth rate of the monthly plan completion rate fluctuates significantly in the first five months, and tends to be consistent in the second half of the year (see Figure 3).

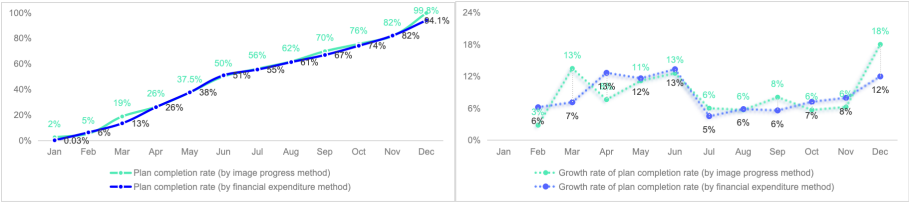

Fig. 3. Completion rate and growth rate of the monthly plan for power grid infrastructure in 2022.

From the perspective of voltage levels, the planned completion rate of the main network project calculated using the financial expenditure method has been higher than that calculated using the image progress method since April, and the monthly planned completion rate growth rate has also stabilized. After analysis, it is mainly affected by the cost entry of continued and carry-forward projects. The plan completion rate of the distribution network project calculated using the financial expenditure method is lower than that calculated using the image progress method, monthly plan completion rate growth rate is higher in the first half of the year, but has decreased in the second half of the year.

4 Conclusion

On the basis of analyzing the impact of the financial expenditure method on the company's investment management, investment implementation progress and plan implementation progress, in order to standardize the investment statistics of the power grid company and ensure the completion of the annual investment plan, the fixed asset investment statistics under the financial expenditure method should be done from the following four aspects.

First, the financial expenditure method is based on the premise of accounting, and only the fixed asset investment projects through accounting can be included in the fixed asset investment statistics, which requires the project management unit to attach great importance to the accounting of fixed asset investment projects, comprehensively sort

out and optimize the business processes such as quantity measurement, valuation, bill issuance, bill delivery, meeting hat approval, accounting, etc., shorten the intermediate management time, and ensure that the accounting amount of fixed asset projects matches the implementation progress.

The second is to regularly (monthly or quarterly) measure the amount of completed projects, according to the contract or the current pricing rules to urge the participating units to issue documents, and the business department to improve the approval procedures immediately submitted to the financial department for accounting, so as to prevent the project from being measured, priced or not accounted for for a long time and resulting in distortion of investment completion statistics.

The third is to strengthen the management of materials, the project use of materials synchronous handling of materials out of the warehouse (receiving, allocation) procedures, to create conditions for timely accounting of engineering materials, to avoid engineering materials have been received or used but not out of the warehouse (receiving, allocation) procedures, or have gone through the materials out of the warehouse (receiving, allocation) procedures but not accounting problems.

Fourth, when the project is completed or reaches the intended usable state, the accounting, contract cleaning and material verification work shall be carried out in a timely manner, and the project shall be converted into assets. For projects that cannot complete the final accounts in time, the provisional estimate and capital increase shall be carried out in accordance with the principle of the lower of the project budget estimate and the actual cost of the project.

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