

Do PPAs breed inefficient power plants?

Revenue security for producers protects inefficiency and results in higher costs to consumers

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It is more than 50 years since Averch-Johnson published their paper in the *American Economic Review* on what has since become informally known as gold plating. The gist of their finding is this: when a defined rate of return is promised, firms tend to make excessive investments in order to earn higher profits.

Such instances have been more noted in capital intensive and regulated infrastructure sectors such as power and telecom. Such practices burden the consumer in terms of higher tariffs while eroding the overall competitiveness of the economy. Over time, regulators have become smarter and have tried to plug such loopholes with regulatory innovations. But like the mythological Lernaean Hydra which grew two heads for each one that was cut off, newer and cleverer instances of investment inefficiencies continue to emerge. The prevalence of power purchase agreements (PPAs) in the power sector seem to be one such instance.

Adequate availability of electricity is critical if India is to achieve the targeted economic growth. With demand outstripping supply, load-shedding has been endemic across



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the country. The 12th Five Year Plan envisages a capacity addition of 88,537 MW. More than half the targeted addition is expected from the private sector.

Since construction of power projects involve substantial upfront investments, private projects use extensive contractual arrangements to mitigate various project risks. One of the key risks in power projects is the demand or revenue risk, that is, the ability to sell the power generated in the plant and collect revenues. To mitigate this risk, it is

common for power plants to sign PPAs with bulk consumers such as the State electricity boards (SEBs). PPAs significantly reduce the revenue uncertainty for the project and provide a sort of comfort cushion for the investor. But what about the consumer?

Higher costs

To find out, we compared projects that had signed PPAs vis-à-vis those that had not. Our dataset consisted of 102 thermal power projects from India. We also put together a global

dataset of 735 thermal projects to check the consistency of the findings. Our results were quite insightful.

First, we found that cost per MW was about 24 per cent higher for projects with PPAs. The trend persisted even for the global dataset. We also ran the tests for wind power plants. The trends were the same, though the difference was a few percentage points lower for wind projects. Since fixed costs account for about two-thirds of the cost of power we consume, the higher cost per MW is likely to burden the purchasers and consumers by way of higher tariffs.

Why is the cost per MW lower for projects without PPAs? Without the safety net of the PPA, these projects would have to be super-efficient; they would have to generate power at the lowest price possible. Else, there would be no takers for the power generated by the plant. On the other hand, no such worries for plants with PPAs.

When there is a secured buyer in place for the power generated, inefficiency invariably creeps in, which is reflected in higher capacity costs. These higher costs get passed on, burdening the SEBs and the consumer. While there is no doubt that PPAs have been successful in at-

tracting private investment, consumers have got a bad bargain.

Debt ratio

Second, the attractiveness of the projects with PPA for the investors is also reflected in the debt ratio. One would have expected that projects with PPA would have a higher percentage of debt because of lower risk. But, what did we find? Projects with PPAs have lower debt funding, indicating that equity investors are willing to invest more in such projects.

Now, why would they want to invest higher, if it were not for the attractive returns? While private investment becomes unavoidable in order to meet the ambitious capacity additions, the use of PPAs as a mechanism to attract private investment should be avoided. The government should focus more on creating a transparent and level playing field, which encourages competition among power producers. Alongside, there should be a robust regulatory environment that prevents the abuse of market power by larger players.

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