



# Comments on Setting a Floor and Forbearance Price for RECs

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## Market Mechanism and Rationale for Forbearance and Floor Price

- REC price to be determined through interaction of demand and supply on PXs.
- Rationale for Floor Price
  - To signal price discovery
  - To provide revenue certainty to investors and assist financing of renewable energy projects under the REC framework.
- Rationale for Forbearance Price
  - To protect the interest of buyers of RECs so that the burden on account of REC purchase is not high.
  - To check abuse of market power or unfair practices.

## However.....

- There are very few examples of assurance of a minimum price for output produced by private investors, even in the Indian context.
- In this background, caution is necessary to ensure that over protection / over incentive does not lead to sub-optimal outcome leading to economically inefficient investment (sometimes over investment).
- In the case of determination of price of power on Power Exchanges (PXs), the forbearance price is not required to be set as this is automatically set at the peak UI charge.
- The market for RECs in India would be closely intertwined with the existing framework for feed-in-tariff (FiT) and the RPO regime. Hence, one needs to understand the interconnections between the two and the associated economic anomalies.

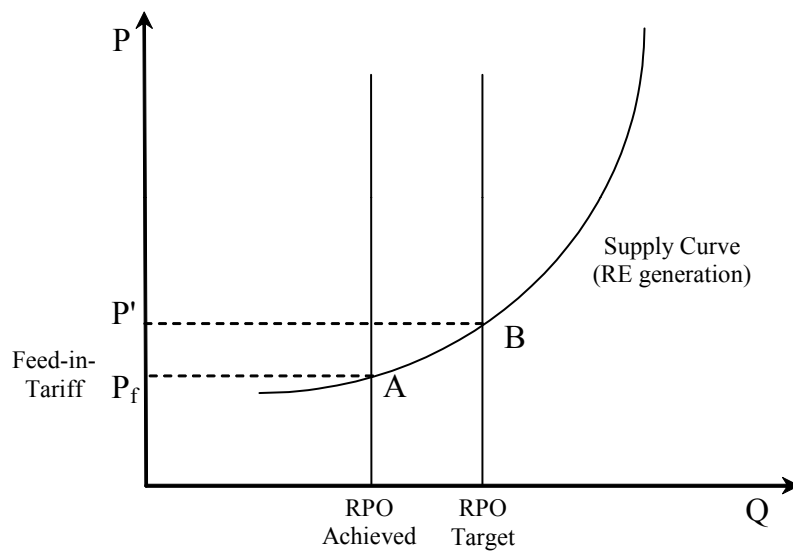
## Economic Anomalies in the Existing RPO Framework and RECs

- 1) Missing link between FiT and RPO
- 2) Absence of Buyout price (penalty)
- 3) Concurrency of the FiT and REC schemes for RES.

## Missing link between FiT and RPO

- The prevailing RPO regulations across various states specify procurement of a quantity of electricity from RES at a given price. Since the supply curve is unobserved by the regulators, the prescribed FiT may not ensure that desirable amount of supply of electricity that would be available from RES. Apart from this, variation in natural conditions which influence availability of RES, brings in added uncertainty to the supply of RES. This brings in a demand-supply mismatch.

## Missing link between FiT and RPO (Result: RPO Shortfall)



So: Singh, Anoop (2010), A Market for Renewable Energy Certificates in India: Economics and Implementation Strategy.

## **From Penalty to Buyout Price**

- In the absence of any effective deterrence in failure to meet the RPO targets, obligated entities do not have incentive to pursue such targets diligently.
- Obligated entities would like to avoid payment of 'penalty' and would purchase the available RES at a price below the 'penalty'.
- However, lack of investment in RES in the state is often used to justify shortfall in meeting the RPO targets. A penalty for failure to meet the RPO, though applicable in a couple of states, is yet to test the grounds.
- There are economic as well as legal aspects to a penalty based deterrence mechanism .

## From Penalty to Buyout Price (Contd.)

- Alternatively, regulators can specify a 'buyout price'.
- The regulatory body (central agency) would essentially 'print' and 'sell', to the 'obligated entities', the number of RECs required to make up for the RPO shortfall at a pre-determined buyout price.
- Hence, the argument for lack of 'supply' would not hold.
- While delivering the same outcome, this mechanism may potentially avoid the legal complications of implementing 'penalty'.
- In the absence of buyout price, the investors in RES would prefer the FiT mechanism over the REC scheme. The uncertainty associated with the market price of RECs may dissuade investors to put faith in the REC scheme.



## **From Penalty to Buyout Price (Contd.)**

- In economic terms, buyout price should essentially be equal to the value of the environmental attributes of 'green electricity. Given that value of environmental attributes should be more or less same across the country, and that REC are to be traded nationally, a single buyout price should be prescribed by the CERC under the REC regulations.
- This would essentially function as a forbearance price for the REC as prescribed under section 9 of REC regulations.

## Effective buyout price in some of the European countries

Country	Per 1 MWh equivalent REC
Belgium (Flanders)	Euro 125 (from April 2005)
Poland	Euro 60 (2005-06)
UK	£30 (2002-03) £37.19 (2009-10)

## Setting Buyout Price and Mutualisation Mechanism

- In the Indian context, buyout price should be set lower than the prevailing penalty rates, since it represents only the 'absence' of green attributes represented by the REC rather than the 'green electricity' purchased under the FiT scheme.
- The revenue from the same could be utilised to support RES and to increase awareness for RECs including consumer awareness about 'green electricity'.
- Another related issue is the applicability of a mutualisation mechanism. In the case of insolvency of an obligated entity to pay for shortfall in RPO target, thus, leading to a shortfall in buyout fund. Mutualisation in the UK requires all other entities who have met their obligations to make good the shortfall, upto a prescribed limit.

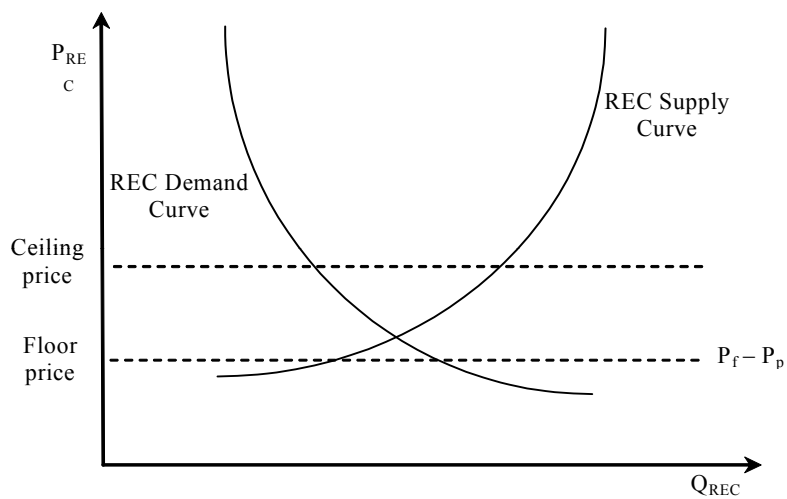
## Addressing Concurrency of FiT and RECs

- A standard REC scheme implemented across most of the countries is a standard 'cap-and-trade' mechanism, wherein utilities are obligated to meet their respective RPOs.
- In India, two alternate revenue schemes for RE generators – (i) Feed-in-tariff Scheme and (ii) Renewable Energy Certificate Scheme.

## Addressing Concurrency of FiT and RECs (Contd.)

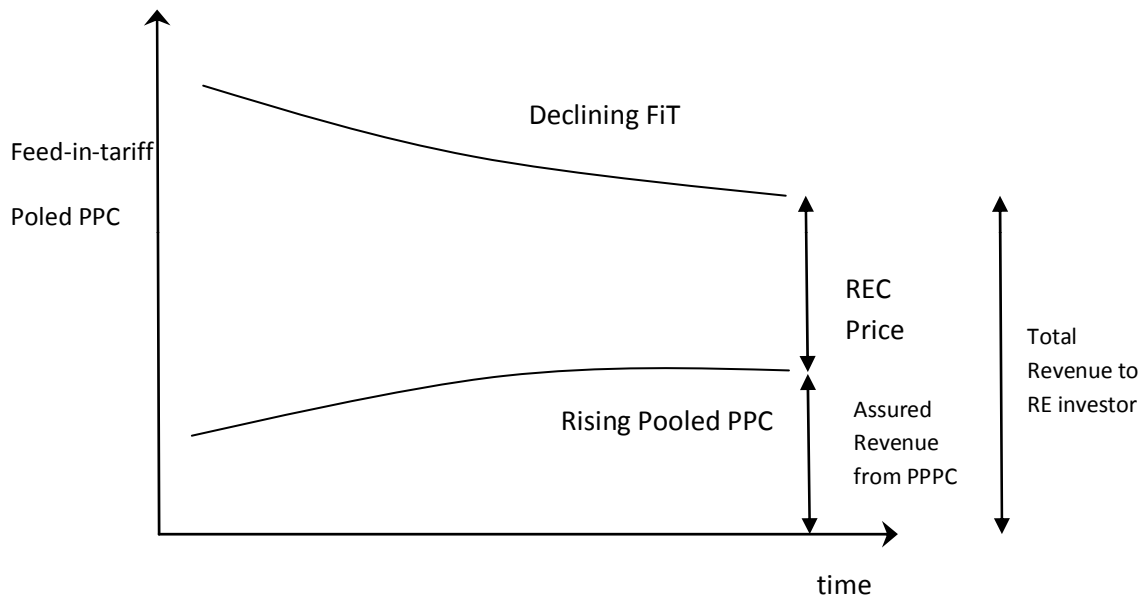
- It is suggested that an equivalent number of RECs can be allocated to the obligated entities who buy electricity from RES under a FiT or a contractual scheme.
- RECs can play a vital role in certifying origin of the electricity purchased under a FiT scheme and be surrendered towards compliance with RPO targets.
- If the obligated entities (OE), i.e. discoms, also get credit for RECs for purchase of RE under the prevailing FiT scheme, the economic benefits of the REC mechanism would be multiplied. This would, however, require fine tuning of regulations to address potential asymmetry across the two markets. Since the OE have paid full for the price of electricity generated from RES, they essentially get free credit of RECs. These RECs need to be surrendered towards their respective RPO target and hence would serve as a compliance mechanism.
- The revenue earned by the utilities by selling the excess RECs would provide incentive to seek further investment in RES.

# Price discovery in the market for RECs



So: Singh, Anoop (2010), A Market for Renewable Energy Certificates in India: Economics and Implementation Strategy.

# Future Outlook for REC prices



Since revenue per unit would theoretically be equal to the feed-in-tariff, there should be little concern for fall in REC prices in future

# Thank You

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