

# New barriers to invest in RES-E projects

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# Introduction

## Could new RES-E support regime deter developers to invest ?

A little reminder:

Binding commitment to reach a Share of RES in the energy/electricity sector (20% objective 2020, possibly 30% and more in 2030)

It means for RES-E capital intensive technologies, a double function of the support instrument

- Insure the fixed cost recovery (transfer of the price risk on consumers)
- Subsidization of non mature technologies

Need of a price instrument because it secures fixed costs recovery

(RES obligation which adds risks to risks)

- So « operating aid » on long term (15 years):
- Feed in tariffs per MWh aligned on estimated LRMC (with learning factor, difference of wind/solar resources) to limit rents

1. Motivation of the revision

2. Increasing risks with new supports

- Feed-in premium
- Definition of support level by auctioning

I do not evoke the technology neutrality rule

# 1. The revision of the RES-E support

## 1.1. Critics of FIT

No exposure to hourly market price (incentives to improve generation forecasts)

- no balancing responsibility
- they produce when negative prices without incentive to stop to generate power

Possibility of rents if bad calibration (under regulatory capture)

Long term effects:

- Risk of overshooting if no flexible rule of
- increasing support cost ,
  - especially with increased capa. & merit order effects of capacity deployment/averaged price decline
- overcapacity because lower price: misinterpretation:

# Revision of RES-E support by 2017

To be authorized, operating aids for RES should be:

## **Paid in from Feed-In Premiums (FiP)**

### **Granted by bidding process to reveal LRMC by market based instrument**

–Exception for equipment of less than 0.5MW mainly PV and 3 MW for windpower (can keep FIT)

### **Granted by technology neutral bidding process (to not distort competition )**

–Exception to technology neutrality

- in order to achieve some diversification
- Exception for less mature technology

–**Beneficiaries are subject to standard balancing responsibilities**, (unless no liquid intra-day markets)

Measures for no incentive to generate electricity under negative prices

# What are we trying to improve?

## Beyond the beliefs in market's and competition's virtues

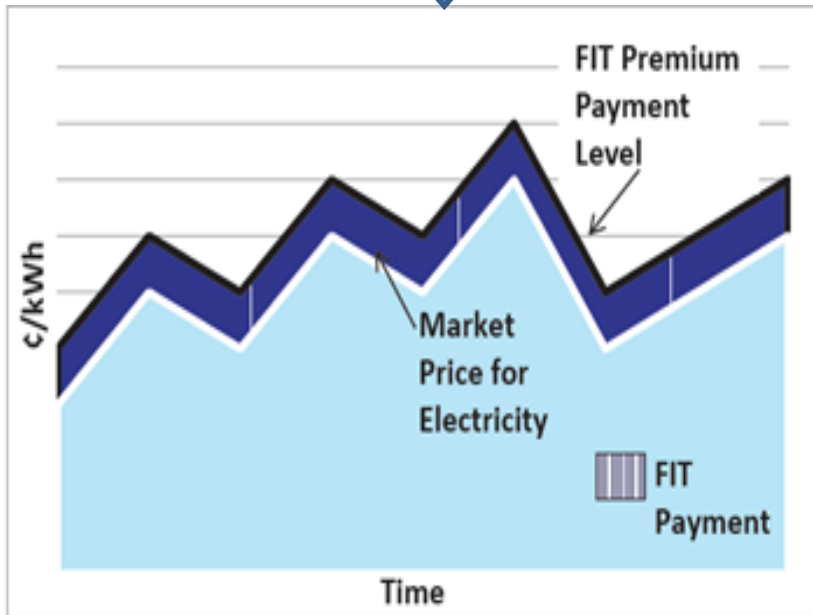
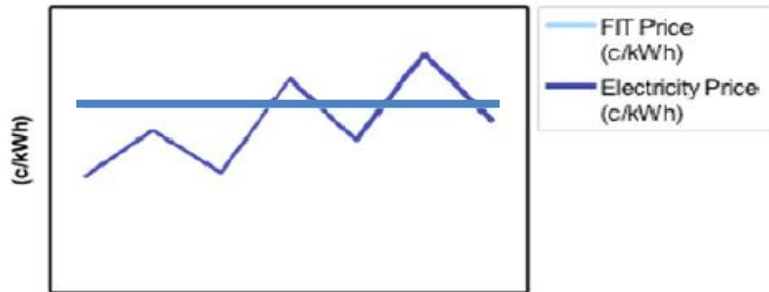
- Any substitute to FIT refers more or less to a reference LRMC of each RES-E , even when learning factor
  - fixed FIP per MWh and per MW referred to it at the initial date
  - variable FIP per MWh or per MW at each redefinition date
  - strike price of the CfDs (a symmetrical FIP) at the initial date

The main goals of new instruments:

- To expose the RES-E producer to electricity market prices (energy and reliability products), but for what?
  - 1. With FITs, incentive to be reliable each hour, in particular during peak
  - 2. Negative prices problem could be easily fixed (no payment during episodes)
  - 3. Market price have lost their function of long term price signal
    - Not invest in any technology if average price is too low
    - Too much RES-E not related to lower average prices
- Auctioning is supposed to reveal the cost and avoid rent by long term competition,  
But it is in a so uncertain environment (see below)

## 2. New risks and barriers to invest for Res-E investors

## 2.1. Investment risks with FIPs compared to FIT



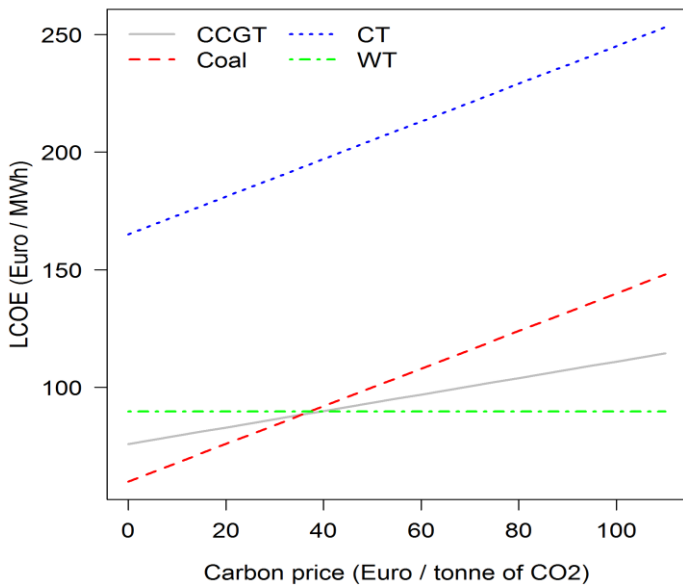
- Fixed FIP per MWh or per MW are the most risky
- Variable FIPs revised each month: some risks with time lag of revision
  - with FIT, no revision
- As for FIT, balancing responsibility must be compensated in the FIPs
- Advantage
  - FIP MWh partly deter to run during negative prices episodes
  - FIP per MW = complete disincentive



# Issue of determination of the FIP in relation to anticipated hourly elec. prices: a parallel with carbon price

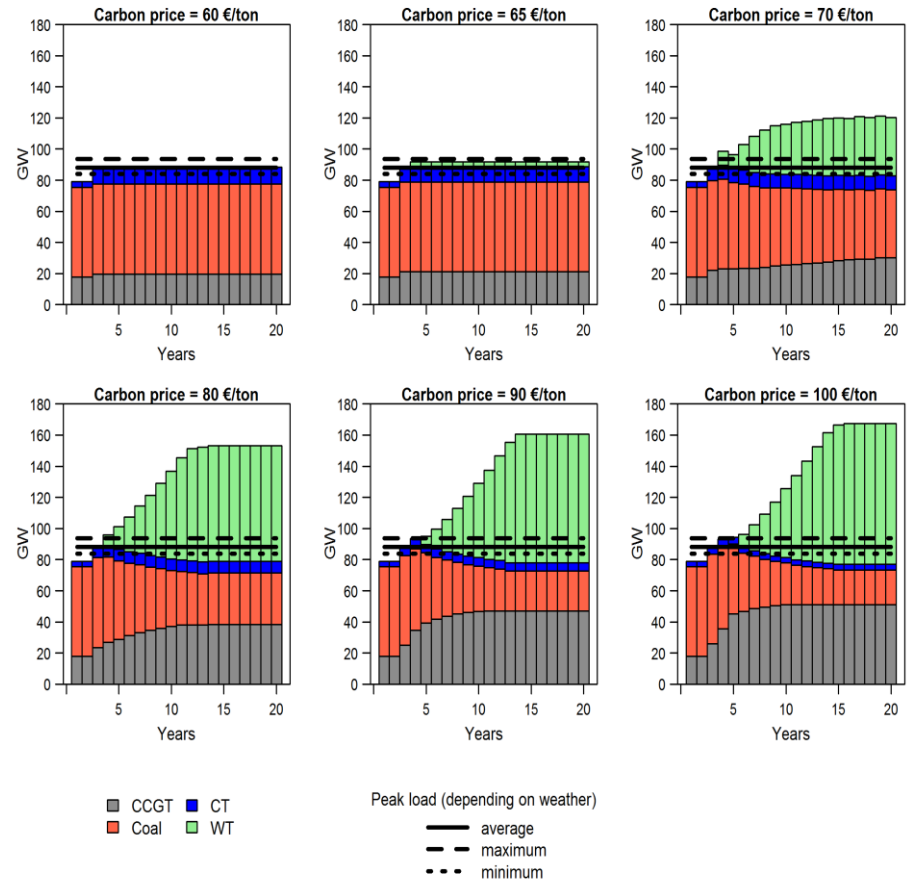
(M. Petitet, 2014)

- **Levelized cost of electricity (LCOE):** Wind power is competitive if the carbon price is **higher than € 40 per tonne of CO<sub>2</sub> emissions.**



## System dynamics market simulation

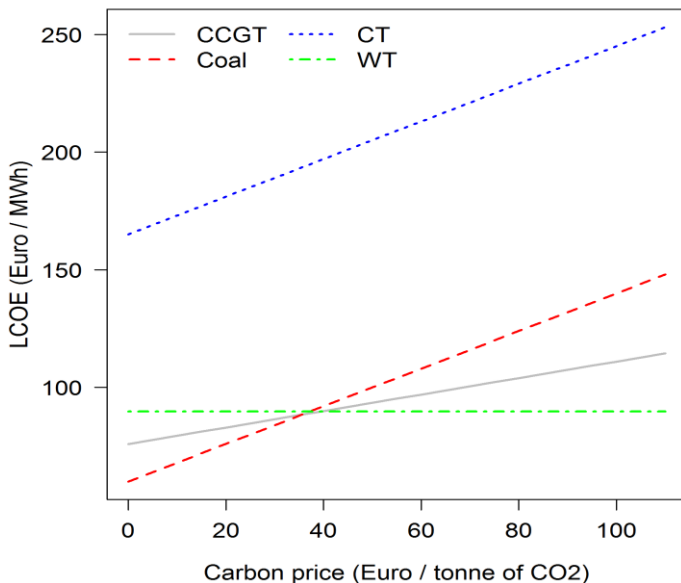
Wind power is part of generation mix if carbon price is higher than **€70 per ton of CO<sub>2</sub>**. Installed wind capacity increases with the carbon price.



# Issue of determination of the FIP in relation to anticipated hourly elec. prices: a parallel with carbon price

(M. Petitet, 2014)

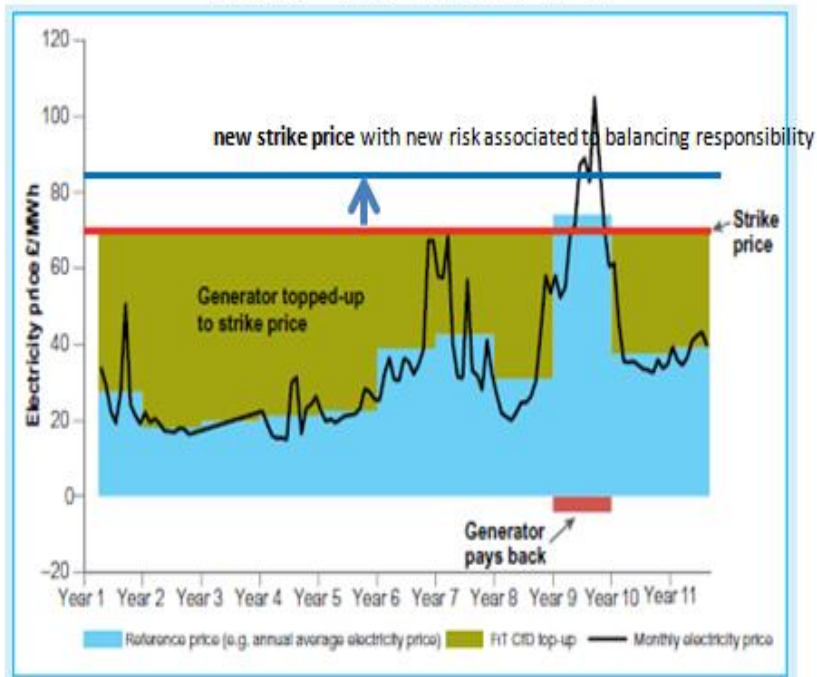
- **Levelized cost of electricity (LCOE):** Wind power is competitive if the carbon price is **higher than € 40 per tonne of CO<sub>2</sub>** emissions.



## 2.2. CfD-FIT: Ideal instrument to manage risks

### It mimics FIT market-based incentives

A FiT-CfD for RES-E



### Advantage for investor

Credibility of the « contract » (not FiP or FIT exposed to public policy change )

Visibility of revenues

### Implementation

Necessity to increase the strike price in relation to balancing responsibility

Choice of the reference price as the daily average price

### Social efficiency advantages

Exposure to hourly prices

Balancing responsibility

Compare to FIT , CfDs allows greater market liquidity

**Lower capital cost with risk borne by consumers, via a levy**

# Negotiation around the strike price and the contract for 15 years

- this includes the current projections for wholesale prices (with the risk to pay back )
- the cost of balancing responsibility
- the grid cost
- the rule of cost decrease via the learning
- the indexation to the Consumer Price Index (as opposed to the Retail Price Index);
- the effective tax rate of an average developer;
- the lower cost of capital as a result of the increased price uncertainty afforded by the CfD

## 2.3. Auctioning to define FIP or Strike price

### Three problems

- **Classical problem of auctioning in illiquid market (collusion, etc.)**
  - **What if geographic zonation?**
- **Transactions costs of applying, in particular for small sized projects below 10-15MW**
  - **Preparation without guarantee to be selected**
- **Risks shifting : new risks on the developer/investor**

How to anticipate the difference between project costs (unforeseen ones) and average annual revenue based on hourly electricity price?

- Impacts of evolution of the technology mix (with RES) , its wholesale price effects, the possible emergence of carbon price
- Impact of the development of flexibility offers on the costs of responsibility

### 3. Conclusion: Is the game worth the candle?

For each instrument FIP , except CfD which keep the virtue of FIT  
**it is at the detriment of the risk management.**

**Increase the cost of capital** and so **increasing the general cost of the RES-E policy**  
**With investment at 1600€/kW**  
**Discount rate at 5% : € 65/ MWh v/s DR at 8%: €90 /MWh**

**Deterring entries/investment in RES-E with lower chance to reach the binding target of 2020**

Secondary problems (negative price) should not be the rationale to skip from an effective support

**Balancing responsibility (BR) is the good answer,**  
but do not forget that cost of BR would introduce risks and would increase price bids in auctioning of FIPs

**Besides CfDs, FIT remains valuable** with a monitoring of the quantity and price revision for new plants