

To invest in capital intensive technologies in electricity:
From the failure of LT commercial contracting
to administered LT contracting

**DOMINIQUE FINON,
CIRED-CNRS & CHAIR EEM**

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Introduction

- **Market failures for investment in generation**
 - both for capacity adequacy
 - & for technological mix (capital intensive equipment)
 - Correction are being introduced for adequacy: capacity mechanism,
 - Not for technology mix
- **Ambitious climate policies introduce a new dimension:**
 - Need of massive investment in capital intensive equipment (small RES-E, CCS, off shore wind, nuke),
 - Need of new combination of long term arrangements and public governance
- **Long term arrangements** to answer to market failures in matter of capital intensive investment in decentralised markets **are needed**
 - **Not only for capacity adequacy**

Which arrangements for new risk allocation between investors and consumers/suppliers ?

Need of long term contracts between generators & suppliers/large consumers

- No clear alignment of interests between parties
- Producer's need of risk sharing for investing in capital intensive units
 - need of long term guarantee of net cash flow: contract with fixed price and fixed volumes (or equivalent)
 - But exposure to risk to wholesale price decrease (Correlation with fuel price)
 - But hold up risk by suppliers (who are exposed to risk of price squeeze and risk of customers 'switch)

Suppliers/consumers' problem vis-à-vis long term contracts:

- If the producer/investor has a large dominant position, risk of discretionary contractual breakdown
- Large consumer preference to build their own plants (or.. In joint venture)

When consumers' commitment could be credible?

Three ways

- **Hostage:** Vertical agreement between industrial consumers and producers around a **joint venture equipment on site (CGT/cogeneration)**
 - Consumer is ready to share a part of the risks (investment, decreasing wholesale price, outage, etc.) with investor
 - **Some 20 cases in the EU markets**
- **Cooperative of consumers: Horizontal agreement of consumers and retailers in a productive grouping :**
- “ the Finnish model” for nuclear plants/ the French Exeltium model (purchase grouping)
- **LT contracts with suppliers with a large core business** or....
 - or **with suppliers with remaining legal monopoly** on mass market
 - Possibility of risk transfer on sticky or captive customers

To sum up: Main ingredients of these solutions

Long-term cost reflective risk-sharing arrangements

- Long term arrangements to get fixed price and volume
- Risk sharing between producers with suppliers and consumers
- Transfer all the costs and major part of risks on consumers

These contractual traits should be reproduced in the mechanisms to drive RES-E and low carbon technologies deployment

Content

- 1 . New combinations of long term arrangements and public coordination: **Characterisation of the main combinations**
2. A brief comparison
3. To conclude on some new issues

1. The need of combinations of long term arrangements and public coordination

Three combinations of long term arrangements and public coordination

- **1. Decentralised coordination by price : Fixed feed-in price (and regulated asset-based price by projects)**
 - **1bis. Decentralised coordination by price: Fixed FIT premium**
German example of RES-E development up to the 80% target by FIT (premium)
- **2. Soft centralised coordination by quantities: Clean energy obligation on suppliers and long term private contracts**
Renewable obligation in some EU member, RPS or clean energy obligation
- **3. Centralised coordination: Auctioning of long term contracts (physical or CfD) for RES –E and Low carbon technologies**

Possible combination of several coordination types: UK example of combination of type 1 and type 3

The main characters of a combination LT arrangements & public governance

1. Long term arrangements (risk sharing, subsidisation, who pay?)

Which risks are best allocated to investor/operator or to consumers/government ?

2. Type of public governance
3. Autonomy of investment decision
4. Distance of the new generators to the hourly markets

Fixed feed-in price

(and regulated asset-based price per projects)

1. Long term fixed feed-in tariff (FIT) per technology on 15-20 years

Counterparts: grids or historical suppliers (Obligation of purchase)

Equivalent to administered contracts back on credible public commitment (**trilateral arrangements**)

Who pay?: FIT costs reimbursed by consumers by tax (EEG, CSPE, etc.) in principle

2. Public governance:

Definition of the FITs and their decrease rate

Tuning with possibility to control the annual installed capacity if overshooting

3. Autonomy to invest

Freedom of timing and technology choice /risk on investors (not for the RAB)

3. No exposure to the hourly market price (no incentive to be available when price are high)

Two differences fixed FIT with premium:

1. Bilateral arrangements with a public fund,

2. 2. exposure to hourly price

RES/Clean energy obligation on suppliers and long term private contracts

1. Public governance:

Definition of the RES share trajectory and the penalty (buy out price)

To fixing the mechanism by introducing technology bands (Issue of regulatory risk)

Control the secondary market of green certificates

2. Private contracting

The obligation of increasing share (with the penalty) = now an alignment of interests of investors with suppliers

Strong incentives 1. developers to hedge on long term basis their revenues from MWh & ROC

2. obliged suppliers to hedge the acquisition of certificates

Bankable projects only if a 13-15 years contracts in the UK ROC system

Alternative: Vertical integration suppliers and its RES-E subsidiary.

2bis. Who pay the overcost?

Retailers' allocation of their obligation cost between different market segments along "Ramsay rule"

3. Autonomy to invest : Freedom of timing (contract or pay the buy out price) and technology neutral

4. Exposure to hourly markets prices and responsibility of balancing

Auctioning of long term contracts (physical or CfD) for RES-E and Low carbon technologies

It concerns mainly the large-sized LCTs.

1. Long term contracts on energy with a neutral agency : either physical, or financial (symmetrical options)

- **Financial contracts** avoid **physical contracting with neutral agency + prorata** allocation of clean electricity to competitors
- Adaptation to each technology

Who pay? The overcosts are paid uniformly by consumers via a tax or an uplift

2. Public governance

Initial management by technology band to technology neutral management on a fifteen years process

Planning for definition of capacities and timing of successive call for tenders by technology

Manage the call for tenders and the contracting process

Standardisation of contracts (by technologies)

3. Autonomy of investors

No freedom of timing and low carbon technology choice

4. Responsibility of producers on markets if CfDs (not if it is a physical contract)

2 . Brief comparison of the combinations of LT arrangements & public governance

Type of coordination and arrangement	Advantages	Drawbacks	Transaction costs and risks on investors
Coordination by Fixed FIT	Effectiveness	Risk of regulatory capture Risk of overshooting	
RES-E / Clean Energy obligation with private contracts	More conform to market principles Cost of obligation less visible But which efficiency advantage ?		
Auctioned standardized long term contracts by technology	Effective monitoring of the low carbon development Revelation of cost Lower Transaction costs than with obligation		

Type of coordination and arrangement	Advantages	Drawbacks	Transaction Costs and risks on investors
Coordination by Fixed FIT	<ul style="list-style-type: none"> Effectiveness 	<ul style="list-style-type: none"> Expose to regulator capture Rent to be avoided When time to FIT phase out(?) 	<ul style="list-style-type: none"> Low
RES-E / Clean Energy obligation with private contracts	<ul style="list-style-type: none"> More conform to market principles Cost of obligation less visible But which efficiency advantage ? 	<ul style="list-style-type: none"> Less effective Capital costlier 	<ul style="list-style-type: none"> High (No standard contracts) Risk of regulatory hold up (horizon, change of rules)
Auctioned standardized long term contracts	<ul style="list-style-type: none"> Effective monitoring of the Low carbon development 	<ul style="list-style-type: none"> Risk of overcapacity Risk of focused on high hanging fruits 	<ul style="list-style-type: none"> Medium transaction costs

3. To conclude on some new issues

Issue of risk sharing:

- How to maintain incentives to efficiency in the control of investment cost and in the operation of equipment?

Issue of public governance

- Importance of the stability and foreseeability of arrangements
- Defining a clear guidance rules from minister for opening up an auctioning (3rd mechanism)
- Risks of planning errors (theory of bureaucracy) (3rd mechanism)
- Risk of capture of the regulator(the three mechanisms)
 - influence of new constituencies on the design of instruments and level of support

Adaptation of next long term arrangements and level of support to the level of maturation of technologies

- Time of shift of arrangements for new equipment
 - from feed-in tariffs to premium or time of phase-out ?
- Time of their phase out.

Self reinforcement of RES-E and low carbon policies

- Long term effects of piling long term arrangements for equipment entries “out of market”
- Extension of the coverage of public coordination and LT arrangements to every equipment (**towards capacity mechanism with long term payment**)

Competition policy issues

- To widely allow vertical arrangements in the name of general interest objectives (new “State aid guidelines” coverage is insufficient?)

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