Market integration of renewable energy

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“Adapt markets to renewables and renewables to markets”

“A functioning market with appropriately defined price zones would thus signal where and when electricity should be generated from renewable sources." (COM(2015)340)

- **Investment decision** → locations with best resources and low capital costs
- **Increase the market value** → balanced spatial and technological RES distribution to match the loads
- **Increase the public acceptance** → avoid hot spots and ensure cost-effectiveness
- **When to dispatch** → whenever the electricity price is higher than the negative value of premium or green certificates

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Introduce support scheme based on feed-in premium

Price based support

- Fixed feed-in tariff (FIT)
- Feed-in premium (FIP) with sliding/Cfd cap & floor

Volume based

- Quota
- Green certificate revenues
- RES-support
- Market price

- No market price risk
- Limited market price risk
- Full electricity market price risk

- Market integration through TSO
- RES-E producer sells directly to the market

Source: Ecofys
Establish a renewable energy operator to manage the support scheme

The counterparty role assigned to a renewable energy operator:

- to legally unbundle it from any other activity performed in the electricity market, or

- to enforce the ring-fencing of financial management for the support scheme;

- the cost of capital for renewable energy projects – influenced by the shareholder structure and credit risk of the operator;

- to introduce an incentive mechanism to keep the variable balancing costs under control, where appropriate.
Introduce balance responsibility for large renewable energy producers

- Standard, non-discriminatory balance responsibility introduced for medium and large renewable energy producers, unless no liquid intraday markets exist;

- Subject to emergence of competitive power and balancing markets in the Contracting Parties that will enable price signals from power and balancing markets to reach producers;

- Enabling transition to flexibility and cost-efficiency in use of the resources in a regional energy market;

- Gate closures times as closer to real-time and harmonised across borders;
**Market design for feed-in premium**

**RES Operator**

**RES producer**

**Electricity trader/supplier**

**Intra-day market**

**Spot market**

**Balancing Group**

- **Contract for the premium / Contract for difference (cash flow)**
- **Contract for electricity/electricity flow**
- **Renewable surcharge (cash flow)**

**End customer**

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Design of the market premium - Germany

Income = Market revenues + support premium

- Support premium
  - Individual tariff of each plant

- Feed-in Tariff
  - Monthly average market value of the national technology profile

- Benchmark for market revenues

- Management premium
  - Covers the cost of balancing the renewable portfolio

Source: Fraunhofer
**Trader’s perspective - Germany**

Additional revenues possible if:
- spot market income is above the benchmark;
- management cost (balancing, trading) is below the benchmark

Source: Fraunhofer
Thank you!

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