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Fair and Efficient FITs for Renewable Energy Sources Electricity (RES-E)

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Fairness and efficiency (1)

- ❑ **FITs must be based on the value of renewables**
- ❑ **→ They must be based on “cost + fair profit”**
 - ⇒ And not on “avoided costs”, or on a “market referent” based on present lower fossil fuels based kWh cost
- ❑ **Measuring “Fair profit” only by IRR (Internal Rate of Return) is dangerous**
 - ⇒ Profitability results not from IRR but from the difference between IRR and cost of capital (“WACC”)
- ❑ **Fine tuning easier from the « Profitability Index », the project Net Present Value (NPV) per \$ invested :**
 - ⇒ From success stories and failures: **$0.1 < PI (= NPV / I) < 0.3$**
 - **PI < 0.1: non sufficiently attractive FITs, not sufficiently GWs/year and additional tens of TWh/year from investors**
 - **PI > 0.3: undue profitability and over-costs leading to market overheating and at the end to “stops & go”**

Fairness and Efficiency (2)

□ Efficiency requires to deliver

- ⇒ Increasing TWh/year and % of electricity demand from RES-E
- ⇒ In order to decrease the part of non sustainable technologies

□ Medium (10 years) and long term (20 to 30 years) targets and scenarios must be defined and optimized

- ⇒ TWh/year, % of electricity demand
- ⇒ Over-costs and benefits by blending
 - Low kWh cost RES-E technologies (onshore wind, hydropower)
 - Base load RES-E (geothermal power)
 - Dispatchable RES-E technologies: simple power plants and CHP systems using biomass and biogas with resource storage
 - Emerging RES-E technologies (PV, offshore wind)

□ Optimization requires detailed FITs by technologies, size, application (e. g. BIPV), quality of sites (“tiered tariffs”)

Fairness and Efficiency (3): tiered tariffs

- ❑ **Creating a “Win-Win situation” (wind, PV)**
 - ⇒ For investors: minimum profitability on lower quality sites, increasing profitability on higher quality sites
 - ⇒ For electricity consumers: FIT and over-costs decreasing on higher quality sites, not undue profitability on those sites
- ❑ **Introduced in 2000 with a huge success by Germany for wind power, then France and Portugal**
- ❑ **Detailed proposals for wind: Ontario (not implemented), Pakistan (decision pending)**
- ❑ **Also possible and of high value for solar PV**
 - ⇒ Case studies in 2009 for 5 European countries
 - ⇒ Detailed case study and proposal for California in 2010
 - ⇒ In both cases, more simple for PV than for wind !
- ❑ **→ Innovation is also possible for the design of simple, reliable, fair and efficient FITs !**