

Renewable energy policies towards 2020 and 2030

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Finland's EU RES-target for 2020

Finland's EU
RES-target is
38 %
renewable
energy of final
consumption
in 2020

- RES-target among the highest in EU
- The structure of the Finnish energy economy is very diversified
 - **Forest energy** has a central role in renewable energy: Share of RES is very dependent on the by-products from the forest industry
- Share of RES is currently about **38 %**

Biofuels share for transport fuels 20 % in 2020 (⇔ EU: 10 %)

Main subsidy schemes to increase the share of renewable towards 2020

Investment aid for renewable and energy efficiency projects

- Annual budget: 35 M€

→ 31.12.2017

Investment aid for demonstration projects concerning renewable energy but also other energy technologies

- Total budget: 100 M€
- Multicriteria competitive bidding process

→ 2016–2018

Feed-in premium for electricity produced with wind power, biogas and forest energy (new investments) and with forest chips (fuel switch)

- Budget 2016: 234,6 M€

→ 11/2017 (windpower)
→ 4/2021 (others)



Finland's national RES-target for 2030

Government programme (2015)

The use of emission-free, renewable energy will be increased in a sustainable way so that its share will rise to more than 50 % during the 2020s

The new aid scheme to increase the share of renewable energy will be **decending, in line with EU guidelines, technology neutral and cost-efficient**

Biofuels share for transport fuels will be 40 % by 2030

EU 2030 ⇔ Government Programme: → 2030: share of renewables > 50%, self-sufficiency > 55%, renewable fuels in transport 40%

⇒ National Climate and Energy Strategy towards 2030

⇒ Working group has analysed different subsidy scheme models for renewables (industrial scale electricity and CHP production): Final report public on May 13, 2016

Investment aid

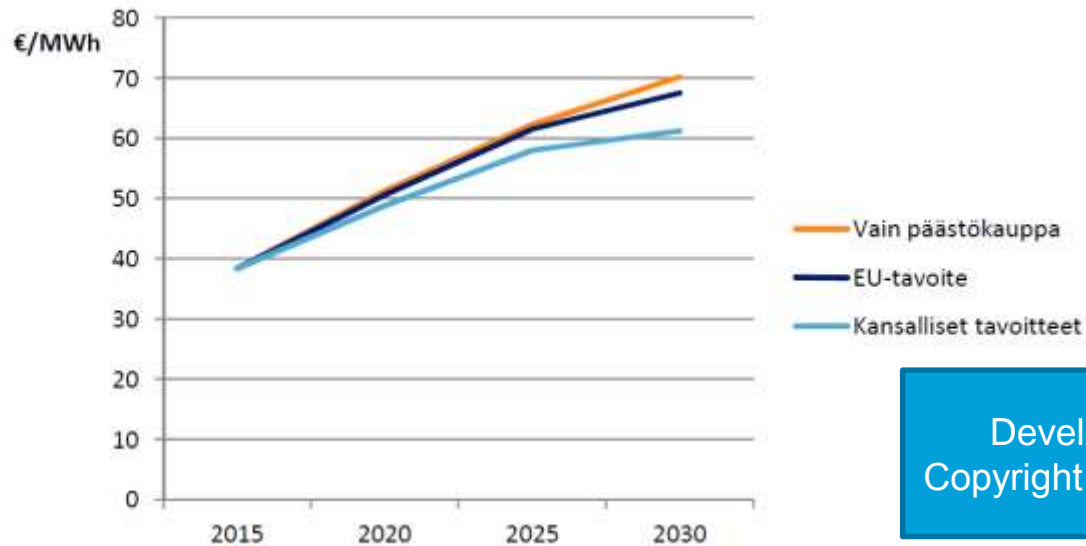
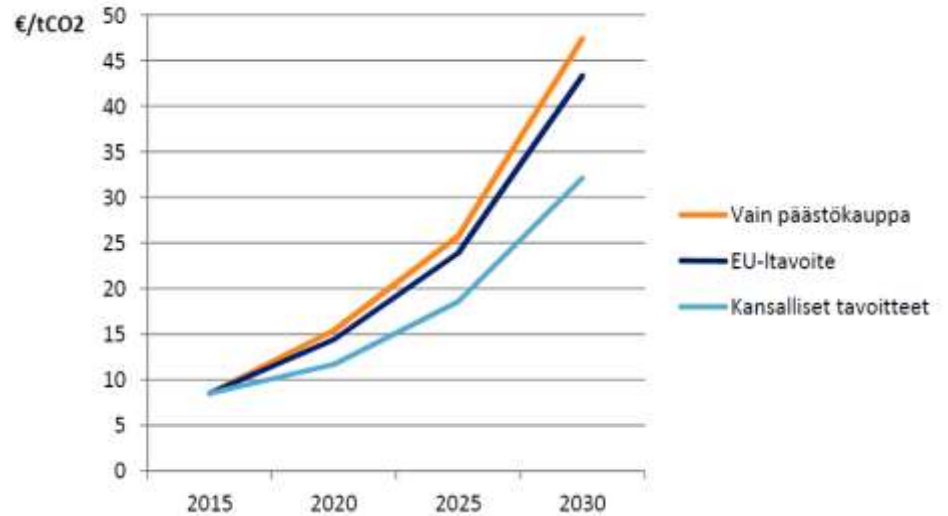
Operating aid

Quota obligation

+ Competitive bidding process



Development of EU ETS price
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Development of electricity market price
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Investment aid

Decisions on a **case-by-case** basis

With or without a (multi-criteria) competitive bidding process

→ **Demonstration projects**

Quota obligation

The quota obligation is set on a political level, but otherwise **market based**

National or cross-border?
→ Setting up of a scheme **very time consuming**

Operating aid

Competitive bidding process a precondition
→ **cost-efficiency**

Flexibility as regards the competitive bidding process, auction cycles, the amount to be auctions, the premium etc.
→ **Considerable possibilities to take into account various interest**

Operating aid for fuel switch

The existing national scheme is very **cost-efficient**

Competitive bidding process not mandatory

No sufficient incentive for new investments

Development of EU ETS price?



Investment aid

Project developer's risk concerning energy produced and market price
→ Higher aid level

Uncertainty concerning national RES target?

Burden on state budget

Quota obligation

Project developer's risk concerning energy produced and market price as well as the price of the certificate
→ Higher aid level

Uncertainty concerning national RES target?

Burden for the electricity end user

Risk concerning over compensation
→ Negative impact on the biomass market?

Operating aid

Project developer's risk concerning energy produced, but risk concerning market price can be reduced or eliminated
→ Lower aid level

National RES target to be achieved

Burden on state budget



Operating aid: competitive bidding process

- Number of projects and project developers
- Certainty/uncertainty concerning price formation

- Static
- Subsidy level
 - = as bid
 - = **clearance price**
 - = first unsuccessful bid (Vickrey)

Sealed bid auction

Descending clock auction









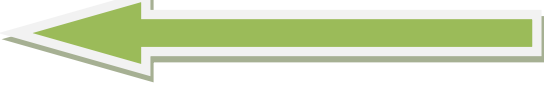

- Dynamic
 - Subsidy level \leftrightarrow Target capacity
 - Uniform subsidy level

Simplicity \leftrightarrow Complexity

Hybrid



Operating aid: Fixed or sliding premium or their combination

Fixed premium	Combination	Sliding premium
		
High	Risk for investor	Low
		
High	Needed aid level	Low
		
Complicated	Setting up the aid level	Simple
		
Quite simple	Predicting the aid costs	Challenging
		
High	Steering effect on the electricity market	Low



