

HOW WILL SWITZERLAND RETURN TO THE PV CHAMPIONS-LEAGUE, THE IMPLEMENTATION OF RATEBASED INCENTIVES LAW IN SWITZERLAND

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ABSTRACT: The concept of the rate based incentives (in Germany the EEG) is today the main driver of the photovoltaic industry. In 2007, with some delay the political process in Switzerland will reach the stage for the implementation of a rate based incentive. The implementation will begin in the context of the liberalisation of the Swiss electricity market in 2008.

Keywords: National programmes, Funding, Incentives

1 BACKGROUND

1.1 The first ever feed in tariffs concept.

In January 1991 the small city of Burgdorf, with a population of 15 000, in the canton of Bern introduced the first rate based incentive concept of 1 CHF per kWh (approximately 0.71 EUR/kWh) of financial compensation for independent photovoltaic power producers. This concept was to our knowledge the first concrete implementation of a successful financial concept for residential photovoltaic applications worldwide. In 1996 Burgdorf had an installed PV capacity of 230 kWp or 15 W/capita. At the time this was perhaps the highest installed PV capacity/capita for an individual city. Maybe this approach was also the model for the German cities like Aachen and later for the national implementation of the “Feed in Law” by the German Parliament 25.02.2000.

Table 1, The Photovoltaic capacity per capita in Switzerland after the introduction of the “Burgdorf-Modell”.

| Capacity | | |
|-------------|--------------|------------|
| Burgdorf | (Dec 1996) | 15.0 W/cap |
| Swiss avr. | (Dec 1996) | 1.2 W/cap |
| Switzerland | Target E2000 | 7.2 W/cap |

1.2 The political situation in Switzerland.

After the rejection of the “Solar-Rappen Initiative” in 2000, in a national referendum, the development of the innovative Swiss PV community was slowed-down, especially in direct comparison to the developments in Germany. Some individual local utilities, however, created their own PV programmes. The utility of the town of Zürich (ewz), for example, had already started a successful green tariff PV programme in 1995 (“Solarstrom Börse”).

1.3 The establishment of ratebased incentives law.

In 2006 the first house of the Swiss parliament, the national council, has agreed in a change of the energy law. The second house of the parliament, the council of states, in March 2007 followed with its decision to change the energy law. This established the environment for the introduction of national “feed in law” in Switzerland. Council of state will finalise the implementation in January 2008.

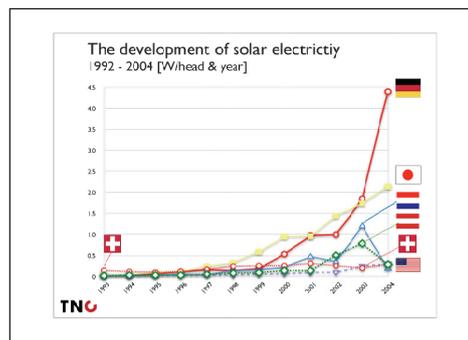


Figure 1, The development of solar electricity market (1993 to 2004).

2 THE SWISS ENERGY LAW

The new section 7a of the Swiss energy law describes the conditions for the efficient production of electricity from renewable energy sources. They include new grid-connected power systems with sources from:

- Photovoltaics,
- Geothermal,
- Wind,
- Small hydropower,
- Biomass and waste.

All new or substantially renovated power systems built after the 1. January 2006 will benefit from the legislation and all the utilities are required to include all the qualifying systems within their area. The owner of a renewable energy plant will have the choice of the scheme (existing or new) and also the possibility to change from one to another at any time. To finance the scheme the utilities can charge a levy of maximum 0.38 EUR/kWh to all the end users. The actual additional cost per household would be about 1.5 EUR per month. For the whole of Switzerland the total would be an estimated amount of 200 Mio. EUR per annum. The cap for small hydropower will be 50 % or 100 Mio. EUR per annum. Initially PV would benefit with 5 % or 10 Mio. EUR per annum assuming a unit price for PV of more than 0.3 EUR/kWh above the commercial unit price. A sophisticated mechanism will allow an increase of the contribution to PV of up to 20% or 40 Mio. EUR per annum, if the unit price for PV electricity falls to 0.20 to 0.25 EUR/kWh above the commercial price. Currently the average unit price for electricity in Switzerland is about 0.05 EUR/kWh.

Table 2, Benefits to PV energy in relation to the unit price.

| | | |
|----------------------------|-----|-------------|
| Cost > 0.31 EUR/kWh | 5% | 10 Mio. EUR |
| Cost < 0.31 > 0.25 EUR/kWh | 10% | 20 Mio. EUR |
| Cost < 0.25 > 0.19 EUR/kWh | 20% | 40 Mio. EUR |

3 PAY-BACK TARIFFS

The prices per unit paid to the producers of PV energy will be according to the type of system and will be higher depending on the degree of sophistication, overall efficiency and size of plant. The three categories are;

- 1 Freestanding systems,
- 2 New or retrofit, roof or facade PV systems without double function,
- 3 Highly integrated systems with double function (Noise barrier, shading, facade, roof).

Table 3, Tariffs for PV energy

| Typ Plant | power | incentives |
|----------------|--------|--------------|
| 1 Freestanding | | |
| | <10kW | 0.37 EUR/kWh |
| | <30kW | 0.33 EUR/kWh |
| | <100kW | 0.31 EUR/kWh |
| | >100kW | 0.29 EUR/kWh |
| 2 Attached | | |
| | <10kW | 0.45 EUR/kWh |
| | <30kW | 0.41 EUR/kWh |
| | <100kW | 0.35 EUR/kWh |
| | >100kW | 0.31 EUR/kWh |
| 3 Integrated | | |
| | <10kW | 0.61 EUR/kWh |
| | <30kW | 0.55 EUR/kWh |
| | <100kW | 0.45 EUR/kWh |
| | >100kW | 0.41 EUR/kWh |

The unit price paid for PV energy will be decreased by 5% every year in respect of the year of construction. The price once fixed will be paid for the full duration.

4 EFFECTS

With the new legislation Swiss people are finally equal with Germany, Italy, Spain, Portugal and France, regarding the support of the new renewable energies. It will possible to build and operate photovoltaic plants and cover the cost. The new energy law has a clause to include PV installations built in 2006 and 2007 in the scheme.

With the initial availability of 5% of the contributions per annum, PV systems with a total capacity of 25 MW could be financed with this scheme. With a unit price for PV energy of less than 0.25 EUR/kWh above the commercial unit price for electrical energy a total of 140 MW of PV power could be supported.

Table 4, Supported PV power depending on the unit cost.

| | | |
|----------------------------|-----|-------------|
| Cost > 0.31 EUR/kWh | 5% | Total 25 MW |
| Cost < 0.31 > 0.25 EUR/kWh | 10% | add. 35 MW |
| Cost < 0.25 > 0.19 EUR/kWh | 20% | add. 80 MW |

5 REFERENCES

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