

## WVEC 2017

The Swedish certificate system –  
disaster for windpower owners



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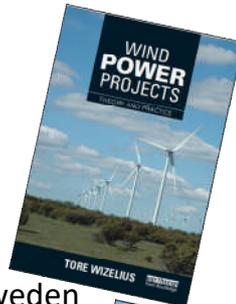
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## The Swedish Certificate System



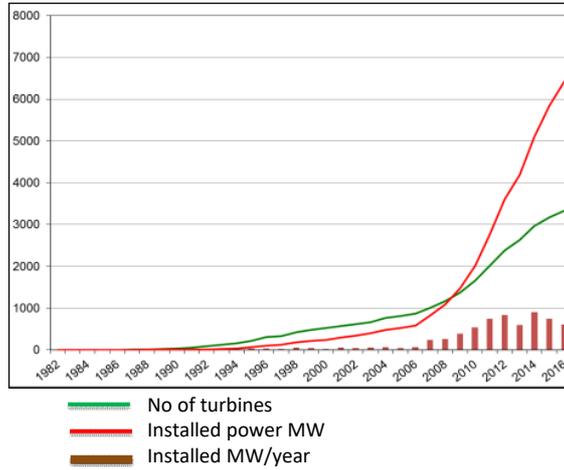
- Sweden uses a certificate system to promote development of renewable energy.
- Producers of renewable energy (wind, solar, biomass) receive one certificate per MWh, and power traders must have a certain percentage – quota – of renewable power in their total sales volume.

- These quotas are set for each year, as a percentage of the expected power consumption for this year.
- Price depends on supply and demand.
- Electricity-intensive industry – i.e. paper mills, steel mills, etc. - are excepted. These companies do not have to pay for certificates.
- This distorts the market, reduces demand and thus certificate prices, and does not give the industry any incentives to reduce power consumption.



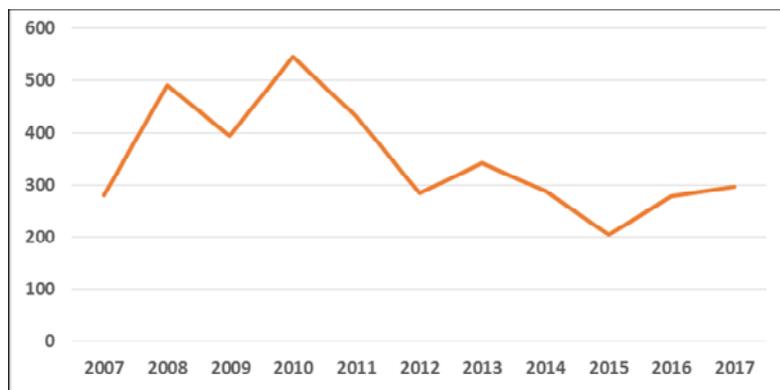
## Windpower development in Sweden

number of wind turbines and MW

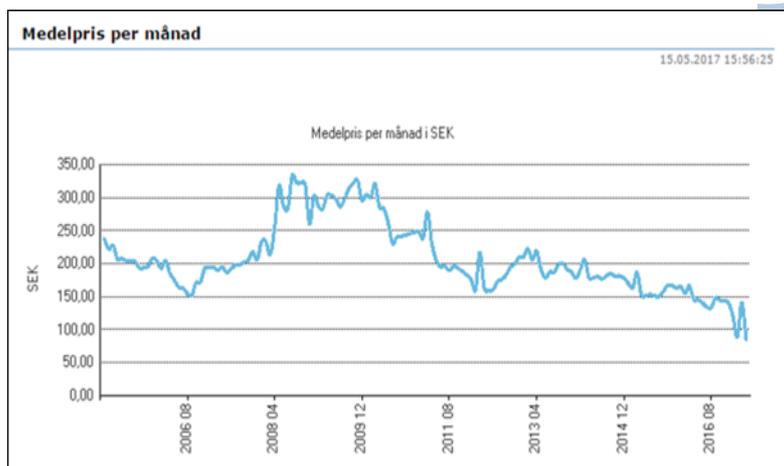


## Electric power prices in Sweden

annual averages, SEK/MWh



## Certificate prices monthly averages 2005-2016



## System collapse



- The system worked well the first ten years.
- However, from 2011/12 the power and certificate prices were too low to make ends meet for those who had invested in windpower plants a few years before.
- In the beginning of 2017 (february 16) the price was down to 41 SEK, an all time low. It has so far this year been at a level of 60-70 SEK.

## Windpower crisis



- Private citizens, farmers and companies who have invested in windpower plants have lost and still loose a lot of money, since the costs are higher than the revenues.
- All these small investors, as well as municipal utilities, power companies and international investors have been "burned", disappointed by diminishing returns on their investments.
- They will not make any more investments in windpower in Sweden.

## Why a certificate system?



- The system was introduced to finance the promotion system by the "market" instead of by tax payers. The certificates are paid by the end users.
- It promotes all renewable power, not only windpower.
- Government can control the development of renewables, and of nuclear power.
- For investors it is a high risk, with ***no investor security.***

## What's wrong with the system?

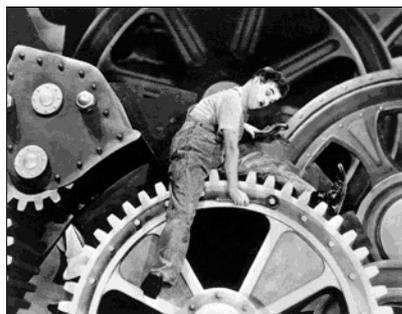


- The certificate system is a financial instrument, created by so called financial engineering, just like the housing bonds in the US which caused the global financial crisis in 2008-09.
- Bad prognoses by the Energy agency on coming power consumption has created a huge surplus of certificates that finally made the price collapse.

## Huge surplus of certificates



- The surplus in 2017 is 16 TWh, more than a year of windpower production, and presses down the certificate price.
- When a machine does not work properly, it is repaired, or replaced.
- This should be done also with financial "machines" which do not work.
- This has not been done.



## The “market” is a business



- The so called “market” is a “business”, that generates income to stock market owners, brokers, and other actors who operate the “market”.
- The higher the volatility, the higher profits for the market “managers”, consultants etc.



## Success...



The certificate system has led to a very fast and cost-efficient windpower development in Sweden.

When more windpower has been installed, the power prices on the market have gone down, giving all consumers cheaper electricity.

In this sense the certificate system has been successful. Government politicians brag about that the national targets have been met.

## ... and disaster



- For those who have invested their money in wind turbines the certificate system has been a disaster!
- In Sweden windpower has been developed by small actors: local windpower companies, wind coops and municipal utilities. Many investments have been financed by private citizens.
- Several of these companies are now on the brink of bankruptcy. To survive they sell some of their turbines to get cash to pay back loans, since the revenues are less than costs of operation, maintenance and capital.
- Larger companies are not as vulnerable, but dislike the certificate system just as much as small actors. They lose money too.

## A system for manipulation, not for support



- The Swedish Energy Agency, made some proposals for modification of the certificate system in 2017.
- The Agency proposed modifications to slow down development of renewables, to avoid that the certificate and power prices will sink more than they have.
- The idea was to adapt the pace of development to make the support system work, ***instead of adapting the support system to promote a fast development of renewables.***

## Hidden agenda – prolong life of nuclear power plants



- The fast development of windpower in Sweden has reduced the power prices significantly.
- The consequence has been that the nuclear power plants don't make ends meet either.
- The hidden agenda of this proposal is to prolong the life of the nuclear power plants, and the interests of the big power companies who own them.
- ***When the market works, rules are changed to protect vested interests.***

## Consolidation



Another hidden motive is to “consolidate” the windpower business, i.e. to get the small independent power producers out of the market, and concentrate ownership to power companies and utilities.

## Proposals to repair the malfunctioning "support"-system



- The proposal was criticized by the Swedish windpower association and other interest groups. This has led to some changes in the proposed government bill.
- The state will buy back half of the certificate surplus, and make a linear quota curve, instead of one that would stop all new windpower development for years to come.
- These changes will not solve the economic problems of those who invested in windpower 6-8 years ago.
- In Q1 2017 there were no new investments in windpower at all in Sweden.

## Reclaim investor security



- A better solution had been to reintroduce **minimum prices for certificates** that were used the first few years after the system was introduced.
- These minimum prices could be adjusted for windpower plants built in different years, based on the average investment cost per produced kWh for each year.
- This would eliminate the so called technical risk, (the fact that prices of wind turbines get lower for each year), which is the cause of the problems windpower owners face today.

## Top down power system



- Energy policy in Sweden has always been a top-down system, since the state owned power company Vattenfall has a strong influence of government power policy. Vattenfall's profits go into the state budget.
- It is naive to think that politicians support local and distributed ownership of renewable power plants. Economists and technocrats have their top down views and theories, and prefer a consolidation of the renewable power business; they want small actors to disappear and be replaced by large power companies.
- This is exactly what now happens.

## Cutting the branch you sit on



- Investors in windpower have been cutting the branch they sit on.
- The more investments, the lower the power price and the certificate price.

## Fixed minimum price could solve the problem



- A fixed minimum price for certificates could solve the economic problems of windpower producers.
- No such proposal to help all those who made this fast transition to renewables possible, and to fulfill the plans of the parliament, have so far been discussed by politicians.
- It is not on the political agenda.

## Conclusion



- All citizens who have invested their money in windpower to create a renewable energy system in Sweden, feel cheated by the politicians who have not showed any intention at all to help them out of the current crisis.
- The fast development of windpower has also led to lower prices for electricity, which has benefitted all power consumers in Sweden. ***These small local investors should be thanked, not punished.***
- Politicians are aware of this problem, but so far have done nothing to help all those who have invested their private money to develop renewables in Sweden.
- It is not our fault, politicians claim. It is the *market!* but this market is created by political decisions.

