

Network of 12 urban wind turbines on the roof of a large store.

## Case study.



A company having a building of 80 meters by 40 installed on its roof 12 urban wind turbines each one harnessing 30 square meters of wind. The owners chooses urban wind turbines because his building is within 100 meters of a residential district. They also chooses a distribution of medium size wind turbines as their consulting engineers estimated that this way no modification would be necessary to the building structure.

The production and the installation of the metal structure being used for supporting and distributing the mechanical loads of the wind turbines cost 200,000\$. Each urban wind generator cost 35,000\$ installed, for a total of 420,000\$. Expenses for connection, including connection with the public electricity network, cost 35,000\$. The project had also cost 25,000\$ in miscellaneous like consulting and taxes, for a great total of 680,000\$.

The experts estimated that the annual production of electricity of the 12 wind apparatus would be between 425 and 550,000 kWh. for an average of 475,000 kWh. The inspectors specialized in emission and exchange of carbon estimated at 390 tons the annual savings in CO<sub>2</sub>, the trade being established in a state where 70% of the

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electricity is produced from coal. To facilitate the financing of its installation, the promoters have sold on carbon exchange market the totality of their annual economies for the first 20 years. They obtained a value of 16\$ per ton for a total of 16\$ X 390 tons X 20 years = 125,000\$.

Project is thus finance like this:

Total cost	680,000\$
Carbon exchange	<u>125,000</u>
Final mortgage	555,000\$

The average price within the economy of electricity and the selling of the surpluses to the national network (at a price less than the price of purchase) is estimated at 11 cents per kWh, for an annual total income of 52,250\$. The maintenance contract for the wind turbines is fixed at 9,000\$ per annum. The hiring of ad spaces (24 times 25 square meters) brings back 12,000\$ per annum, the annual profit is thus of 55,250\$.

This profit being included in the operation incomes of the building, this one gain a plus value of approximately 825,000\$, which justifies the basic investment and allows a mortgage financing of the project without basic setting of the promoters.