The New Era of Wreless Transmission of Electrical Energy

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Abstract

In the Morden transmission technique the electrical energy flows by means of thee physical contact between the source and the destination that causes a huge wire resistance loss, a lot of money investments for the efficient tower and substation construction. A question arises here that, is it practically possible to get rid of all the construction investments and the wire resistance losses, making the process even more efficient and reliable? The only possible way is to make the entire transmission system wireless. All the detailed researches in this paper have developed a new era, which is the era of the wireless transmission system. Here in this paper, a detailed research and study on the wireless technology is done to prove the atmosphere and the surface of the earth contained with an extremely high amount of charge (in terms of million coulombs) , the approaches of Dr.Tesla and various papers by some great researchers is preferred to design a transmitter that energises the stationary electrons to flow from the source to the destination through air without any physical connecting medium.

INTRODUCTION

Efficient tower construction, substations and transmission cable lines are the most essential component for the transmission of the electrical energy from the generating end to the receiving end in the present scenario. Now a days electricity is essential, it has become commercialized. An overhead transmission line is required to transmit electrical power in large quantities over long distances.Necessary condition for increasing the efficiency of electrical energy production and transmission are, offering a lower price, higher quality and more secured generation and transmission of bulk power to the consumers.

In majority of power system, generating plants are located far from the load centers thus the investment in transmission line is huge. To avoid line losses, we are transmitting high voltage. So, as the voltage level increases, investment in tower & its accessories increases.

In this paper, we have reduced such type of huge investment by reducing the amount of steel in towers, aluminum in conductors, hard wares, steel for earth ware etc. The cost reduction on the total material used in the project would be remarkable.

So establishing a wireless transmission system has the advantages of

- Minimising the wire resistance losses to a great extent
- Making the system more efficient about 90 -94%
- To eliminate the inefficient costly cables, towers and substations.
- Import and export of the electrical power internationally.

Here in this paper a detailed research is done on how a wireless electricity generator can be constructed and other vital applications of the wireless electricity transmission.

Need For Wireless System Of Energy Transmission

The wireless transmission system can show the following conciquences

minimize losses due to resistance of wire

make the system more efficient about 90-94%

Eliminate inefficient & costly cables, towers & substations

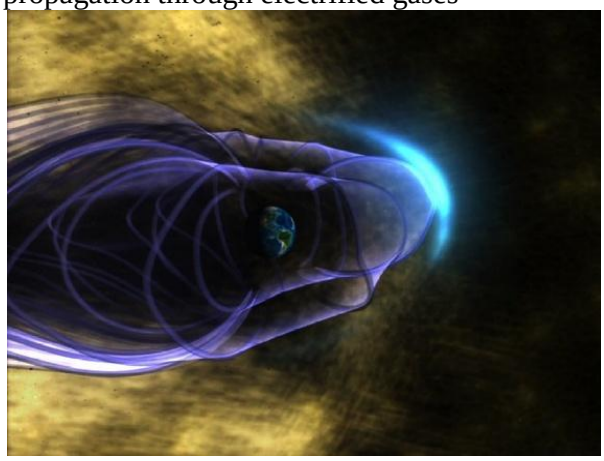
Import & export electrical power internationally

Advanced Technology Of Transmission

Different Theories proposed are:

Transmission through or along the Earth

Propagation as a result of Terrestrial Resonance
Coupling to the Ionosphere using propagation through electrified gases

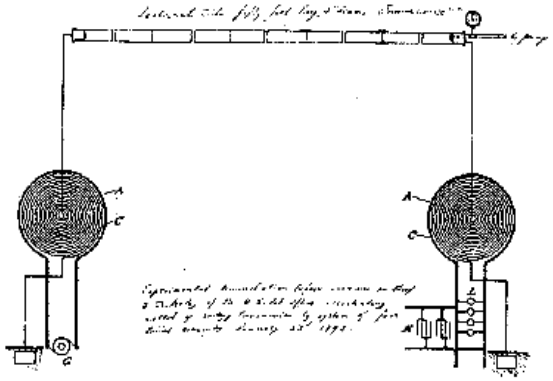


some electrical nature of the atmospherefrom an effective experiment we have the following electrical nature about the atmosphere

1 to 3*10^12 A/sq m
Atm resistance = 100 ohm
Voltage=2,00,000
1000 lightening storm at any moment worldwide
Each produces 0.5 to 1 amp
Standing waves 6 & 50 cycles/sec
Propagation as a result of Terrestrial Resonance

SCHUMANN CAVITY RESONANCE

Earth behaves like an electric circuit & atmosphere acts like a weak conductor.
If there were no sources of charge, the existing electric charge would diffuse away in about 10 minutes.
There is a cavity defined by the surface of the Earth & the inner edge of the ionosphere 55 Kms
up.At any moment the total charge residing in this cavity is 500,000Coulombs.
Coupling to the Ionosphere using propagation through electrified gases
This experiment is done with two coils one is a transmitter and another one is a receiver. high voltage sparks are produced on the transmitter coil and between the transmitter and the receiver a tube filled with gas maintained at a pressure of 75 to 130 mm is placed with a rigid support. the following consequences were observed..



Air under a partial evacuated vacuum can conduct high current better than Copper wires.
If transmitter is elevated to a level where air pressure is about 75 to 130mm & an excitation of Mega volts is applied, then the air will serve as a conductor for production of current.
The current can also be transmitted through air.
If a high voltage spark is produced in the transmitter coil to energige the atmospheric stationary charges it can be transmitted to a large distance and the wireless transmission can be done that shows the above mentioned consiquences

Here a transmitter plant is designed that produces high voltage sparks and transfers the wireless electricity.
About the Plant:
Has a full size,51feet diameter,air core,RF resonating coil which is the largest part of the system.
130feet tower,insulated 30feet above ground.
Has a capacity of over 600 Kilowatts.

High voltage spark producing transmitter
G=Current source
EABBD=RC
Input=300 kw
Out put=1,20,000
116 amp
P=hemispherical m.e
Min leakage
Small space ,longer capacity
A= oil
C=primary wndng

E=grnd plate

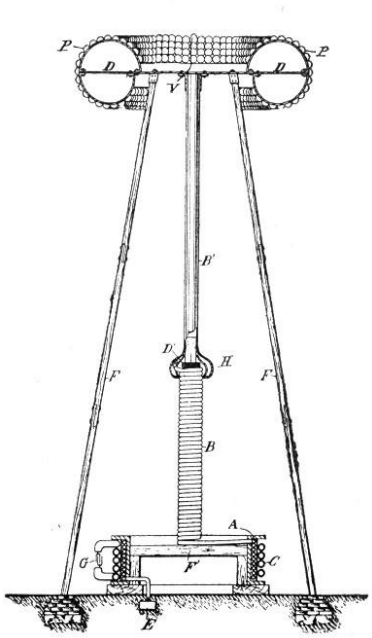


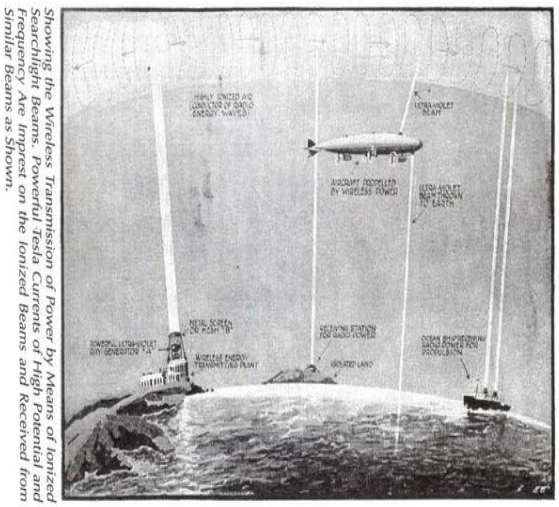
Figure of practical transmitter

Transmitter View During The Sparking Period

Applications of the wireless electricity

For defence purpose

The image below shows the wireless transmitter on the beach of an ocean. Whenever the high voltage sparks(order of million volt) the electricity transmits through the salt water and destroys the enemy forces. It has a very vital importance for the naval force.



Showing the Wireless Transmission of Power by Means of Ionized Searchlight Beams. Powerful Tesla Currents of High Potential and Frequency Are Impress on the Ionized Beams and Received from Similar Beams as Shown.

Energising the airplanes

A high voltage beam can be transmitted from the slip to the flying aircraft that energizes the motor of the air craft, which will reduce the possibilities of the accidents and hazards.

Requirement of wireless electricity

The traditional transmission of electrical energy causes a loss of 26-30% of the energy generated.

But the wireless system is 90-94% efficient

Inefficient, costly, and capital intensive grid of cables, towers, and substations construction can be eliminated completely. Cost of electrical energy can be reduced to a large extent.

The table below shows a comparision of losses between the traditional transmission technique and the wireless transmission technique.

Extra-High-Voltage Transmission:
765 kV: 2,116 Miles
500 kV: 113 Miles
345 kV: 5,910 Miles
EHV Subtotal: 8,139 Miles
High-Voltage Transmission:
230 kV: 140 Miles
161 kV: 282 Miles
138 kV: 16,202 Miles
115 kV: 66 Miles
Below 100 kV: 14,230 Miles

All these transmission causes a loss of 26 to 30% energy loss but a wireless transmission system makes it to 6 to 7%.

The tartics below represents the cost per unit miles of the transmission

Voltage Class	Cost Range/Mile*
765 kV Single Circuit	$2.6 – 4.0 Million
500 kV Single Circuit	$2.3 - 3.5 Million
345 kV Double Circuit	$1.5 - 2.5 Million
345 kV Single Circuit	$1.1 – 2.0 Million

The wireless transmission makes it to 1 to 2%.

The statistics below represents the tower construction cost.

Voltage Class	Tower Height - Feet Hilly Terrain	Flat Terrain
765 kV Single Circuit	135	150
500 kV Single Circuit	120	135
345 kV Double Circuit	160	175
345 kV Single Circuit	110	125

A wireless transmission system doesn't require any additional tower. only a transmitter and a receiver is required.

CONCLUSION

In the project a detailed research about the transmitter is mentioned. so a further research is required to design a receiver that revives the wireless electricity according to the load demand. the next step is the testingand improvement is needed.the transmitter and the receiver need to be tested and improved before processing.

Total cost from proof of principle to commercial prototype is expected to total $3million.

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