

PHEV HOMECHARGING MODEL BASED ON RESIDENTIAL ACTIVITY USING VIRTUAL INSTRUMENTATION

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Abstract— Now a day's fuel vehicles are producing more atmospheric pollution in our world. So the effect of pollution it induced the global warming. So worldwide all automobile companies are promoting to manufacture Electrical vehicles. Electrical vehicles plugin power from the distribution grid. But it produces harmonics on the power system, so the power quality will be reduced. This paper proposed to design the charging station of PHEV system based on residential activity. Charging station collecting datas from distribuion power and demand side, using this data charging station command plugin vehicles to connect or not. In this model it shows the output like number of vehicles connet with the charging station for charging the battery at corresponding time period.

KEYWORDS:- PHEV charging , Load duration,Virtual instrumentation,Labview,load curve.

1 INTRODUCTION

[1] Electric vehicles in the car park area, an opportunity gets to reduce carbon dioxide emission. The green house has emission and pollution caused by transport has the main one of the obstacle to sustainable development identified by European parliament. The directive states that commission continues with efforts to develop markets for energy efficient vehicles through public awareness-raising. It measures to reach the target are mentioned to be renewable fuels. Hybrid vehicles and electrical vehicles, altogether these efforts are encouraging purchases of more environmentally vehicles are friendly. The policy has been formulated that the national car park should be independent of fossil fuel. Since it is likely to cause an increased in an amount of plug in hybrid electric vehicles in the car. the overall load profiles are related to the charging behavior of the vehicle, with the plug-in hybrid electric vehicles in the system. The electric power system may not be affected in particular system. A continuous (or) random charging behavior induced by so many electric vehicles can be stressed the electric power system causing overloads, and the re will be an fluctuations of voltage and power losses.

[1],[16] In order to estimate load profile the expected electric vehicles charging behavior have modeled in several studies. To estimate the charging load the electric vehicle impact was analysed by driving cycles to find the battery state of charge distribution. The 4.3million private cars where of about 20% are owned by the entities. [17] If these 20% of cars are the electric vehicles they consumes 8kwh/day this is the daily consumption in the range of 34GWH this done in Sweden. so for calculating the load consumption characteristics of load from residential load and plug-in hybrid electric vehicles by comparing the load of both residential and plug-in hybrid vehiclwith respective time.

The paper propose model on ba-

sis of load profile for plug-n hybrid vehicle and residential load. as if plug-in hybrid electric vehicle will be charged with 600W if residential load is less than plug-in hybrid electric vehicle then the phev will not be charged. if the residential load is maximum at that time the phev will be charged while the residential load is less than the range of the phev then the plug-in hybrid electric vehicles will be connected to the another residential the required power will be consume from the another house hold.

In this previous paper was calculated with by using synthetic pattern. But in this paper the load comparison done by the plug-in hybrid electric vehicle home charging model based on residential activity using virtual instrumentation. [1] Cost of electricity to plug-in hybrid for all-electric operation has estimated at less than one quarter of the gasoline in California. PHEV reduces air pollution by comparing other conventional vehicles. Cars are used to work as using petroleum. By using the phev it reduces green house gas that will contribute to global warming. Nowadays cars are getting charged by using renewable energies like solar panels etc. By using a renewable energies for charging an car with that there will be some hormones released by charging the car by electricity.

This paper proposes a new model for comparing the load from residential and phev with respective time. This is done by phev home -charging model based on residential activity using virtual instrumentation.

2.Existing method:-

[1],[16] The existing method is used in previous paper in this a new model the stochastic residential activity simulated in order to explain the variation of load due to phev uncontrolled home charging as well as due to perform electricity -dependent activities in house hold. After that the

new model executed that the model combines a new model for phev charging with the model for synthetic activity generation of residents.

This synthetic activity data is simulated based on with respective time use data is collected in time diaries. In this new phev home-charging model, this simulated by the activity of either car is near to the plug socket (or) away from the plug socket ,by adding the charging module charging module that allows phev to be charged at home after the car leaves from the charging point of the plug socket. The previous paper says that it important to create a model that captures residential performed activity to simulate and visualize the electricity consumption in household.

The contribution of this paper is the combination of the phev usage model, based on residential activities. The electricity-dependent activities in the household electricity consumption at home. This approach allows a differentiation of unmovable repectively movable electricity-dependent activities performed in the household combined with phev charging suggestions for a potential for load shifting.

The main reason to implement is to contribution of developing this kind of model is that the differentiating load profiles are individual and stochastic, a further contribution is the comparison of the standered deviation of the residential load with or without phev charging.

3.Proposed model:-

The main feature of PHEV is to calculate the load by comparing the residential household and plug-in hybrid electric vehicle charging load with respect to time.. As the phev standard is 600W. PHEV system is used to charge a car when the household load is minimum.when the load consupstion is maximum in residential then phev system cannot perform charging operation.to over come this we can tie up the phev system to another house by using tie line,the required remaining power can be obtained from another house.hence phev can charge.

4.TIE LINE:-

Tie line is to connect the plug-in hybrid electric vehicle between two houses. Tie line is connected in parallel to the PHEV. When one home consumes more amount of power then PHEV will not charge, so to charge the phev power is taken from the other house which is linked by the tie line,for example car is charging from one residential plug point then suddenly load varies in that case for charging the car phev will tied up with another home,so as to get the required power for charging the car.

5.Front panel of Phev charging station

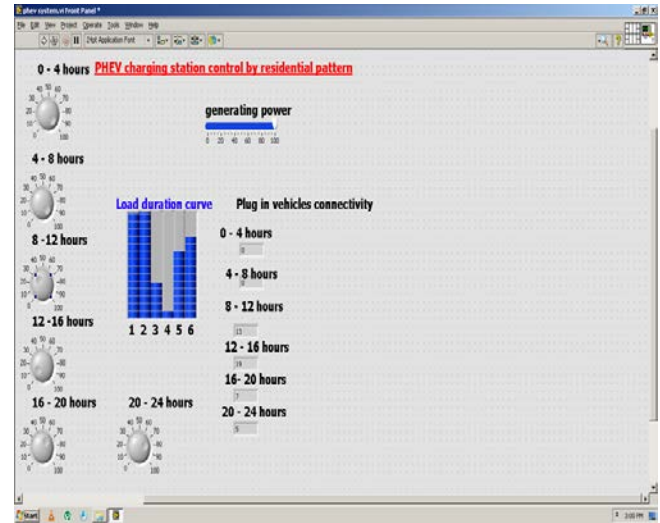


Fig1:-front panel of phev charging in labvie

In the fig1 shows the respective hour how many cars can be charged. Fig 1 shows the generating power, load duration curve and plug in vehicle connectivity for every four hours. Comparing the load consumption this system will show how many cars can be charged. In this fig load curve indictes numbers 1(0-4hour),2(4-8hour),3(8-12hour),4(12-16hour),5(16-20hour),6(20-24hour). The plug in vehicle connectivity indicates how many cars can be charged using load.

6. Block diagram for phev charging station control by residential pattern

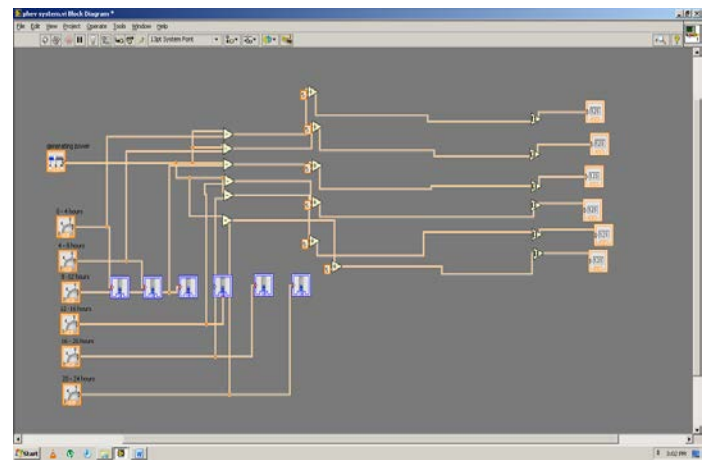


Fig2:-Block diagram for phev charging in labview

In the Fig2 is the block diagram for phev charging control by residential pattern. This block diagram represents the connections of the generating power and distributing power that by respective load for every 4 hours then the how many number of cars can be charge by respective load.

7. OPERATION:-

Front panel of phev charging station ($p_g \leq p_d$)

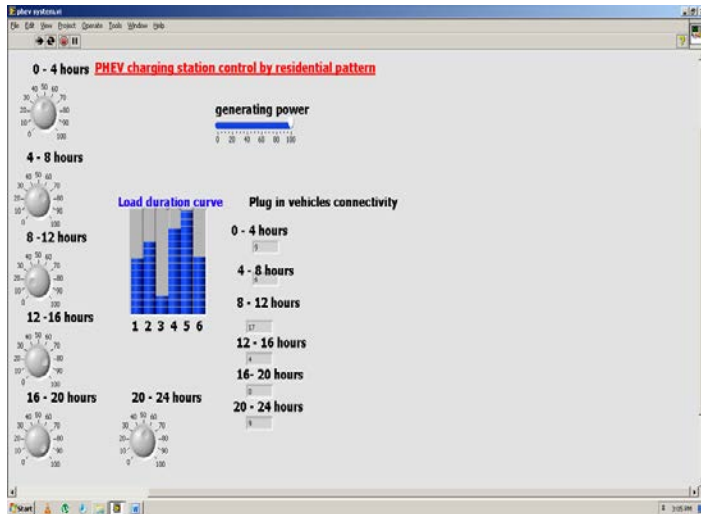


Fig3:-front panel for the generating power is greater then demand power ($p_g \leq p_d$).

In fig3 the phev charging station control by residential pattern explains that if the generating power is lesser than demand power in that case no phev's will be charged. if in case phev's are plugged in for charging then the harmonics will be produced. Hence to overcome the production of harmonics a phev system must be controlled or managed

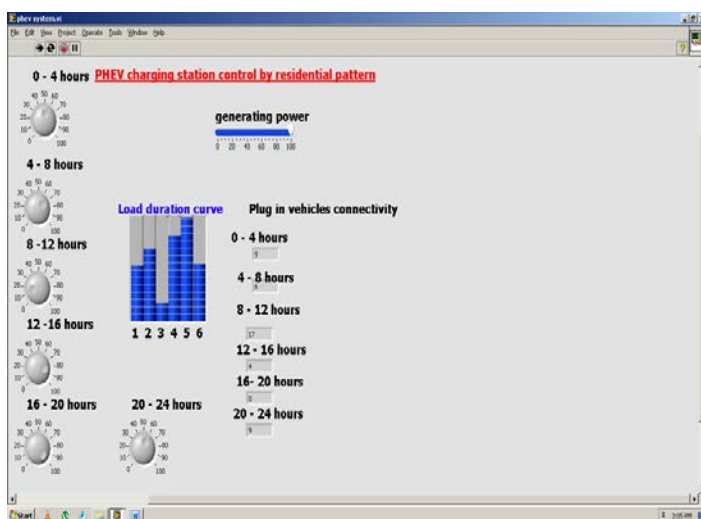


Fig 4:Front panel for the number of vehicles charged.

The above fig4 explains the control action of phev charging station using virtual instrumentation. The load curve is generated for every four hour, based on load curve the system will displays the no of vehicles can be charged for that four hours. In above fig4 we can observe that at low consumption of power

in home more vehicles can be plugged in for charging ex:at 8-12 hrs power consumption is very low hence more no of vehicles can be charged at that time duration.

8. CONCLUSION:-

This paper proposes a model to control the charging PHEV system using home charging pattern. It is a time variant system and the entire control action of PHEV is depends on load curve, based on the load curve this system will indicates the number of vehicles can be charged at that time duration and hence production of harmonics in the system also can be overcome.

9. FUTURE SCOPE:-

The proposed model can be easily adoptable for the houses for the PHEV and this phev system can be implemented in all the houses.

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