

# A Smart way of Consumption

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**Research and Script - Hemant Lagvankar**

*This is the episode on the topic 'Enhancing Energy Efficiency'. The episode tries to focus on the problems faced by the common people in day to day life regarding energy crisis and talks about the remedial measures.*

*Also, the episode depicts the efforts which are made at mass level to improve energy efficiency. More importantly, the episode gives information about the National Mission for Enhanced Energy Efficiency (NMEEE) and the efforts carried out by the Government organizations as well as NGOs throughout the country for the same.*

*The episode emphasizes on how different forms of energy can be consumed in sustainable ways. It talks about the innovations and innovative practices.*

## **List of Characters:**

- Bunti :** A school going boy – Age 13 to 15  
**Pappa :** Bunti's Father (Age about 45-50 years) – (His name is Manish)  
**Mamma :** Bunti's mother (Age about 40 - 45 years)  
**Sanika Shenoy :** A social worker (Age about 45-50 years)

*(Bunti is watching a cricket match on television. The sound of cricket commentary is heard. The match is at exciting stage. A shouting of public and an excited sound of commentary is on the background)*

**Bunti :** *(with all the excitement)* Yesss! Here we go.... One more boundary! Come on India...

*(All of a sudden, the sound of cricket commentary stops)*

**Bunti :** Oh No! Is this a time to cut off the power? Now how can I watch this thrilling match? *(To his mother, shouting with anger)* Mamma, now it's high time....

**Mamma :** What's wrong Bunti? What happened?

**Bunti :** Mamma, the match is on its high pitch and there is power failure! Now, at least for two hours there will not be power due to load shading. Why don't you tell Pappa to install generator set... at least a battery and inverter set in our home?

**Mamma :** *(Laughing)* Come on Bunti!

**Bunti :** Mamma, don't laugh. My exams are over... I was enjoying Sunday....and I cannot just fulfill my simple wish!

*(Bunti's father comes out from inside room)*

**Pappa :** What, happened beta?

**Bunti :** Pappa, I want generator set... at least a battery and inverter set to be installed in our home.

**Pappa :** (Laughing) Okkk... will think over it!

**Bunti :** No diplomacy, Pappa! I am serious!

**Pappa :** Ok then. Let's be serious and have a serious discussion on it!

**Bunti :** Pappa, what is there to discuss in this issue?

**Mamma :** But, sometimes I also feel that Bunti is correct. We have to have an inverter set as so many things just keep pending due to power cut!

**Bunti :** Yess, Mamma is correct!

**Pappa :** Bunti, you are grown up now and I am sure you can understand the issue.

**Bunti :** Ok.

**Pappa :** Beta, the basic question is why there is power cut?

**Bunti :** Due to load shading... simple!

**Pappa :** Why is the load shading?

**Bunti :** Due to shortage of power!

**Pappa :** This is the half truth, Bunti.

**Bunti :** How? I don't understand.

**Pappa :** I will explain you. We face power shortage because we are consuming more power than we produce. In other words, our demand is more than the supply.

**Bunti :** That I know Pappa, but we cannot produce power.

**Pappa :** Bunti, this is again half truth. We can generate power.

**Bunti :** Yes...using generator. That is what I was exactly talking. We have to purchase a generator.

**Pappa :** Don't be so impatient, Bunti. Let's talk about each point one by one.

**Bunti :** Meaning?

**Pappa :** Let's talk about the deficit between demand and supply of the power. One of the reasons why we face power shortage is that we are not consuming electric power efficiently.

**Bunti :** But how can we use electricity efficiently?

**Pappa :** There you are! For that, make a survey in our area.

**Bunti :** Survey? Pappa, you are either diverting the topic or you are making me fool!

**Pappa :** *(Laughing)* No dear! I am neither diverting the topic nor making you fool. I will tell you why to do the survey and how can you do it.

**Mamma :** *(Calling)* You do your survey later... first come for the lunch now! Lunch is ready!

**Bunti :** Ok Mamma, we are coming. Pappa, let's continue our discussion during the lunch!

**Pappa :** *(Sarcastically)* Ohhh....there is no lunch break like a cricket match! Great!

*(Music piece of change over scene)*

*(On one evening... Bunti is ready with the survey observations and eager to discuss about them with Pappa)*

**Bunti :** *(Calling)* Pappa.... Pa..ppa....

**Pappa :** *(Responding from inside)* Yes, Bunti... *(Coming out of the room)* What happened, Bunti?

**Bunti :** Pappa, see I have almost completed the survey. And moreover, I also have summarized these observations.... See...

**Pappa :** Ohh, Bunti! You have done a great job; that too within a week...great!

**Bunti :** Pappa, what I have found that, in most of the shops tube lights and halogen lights are being used. There are few cases where CFL lamps are being used.

**Pappa :** Bunti, but what is about LED bulbs?

**Bunti :** Yes. I observed LED bulbs, but in big showrooms. They used LED panels. But such cases are very few in comparison.

**Pappa :** I think now you are close to the answer of your question!

**Bunti :** Yes. If we use LED bulbs instead of other types, they consume less power. Also, unlike CFL bulbs they do not contribute to environmental pollution as far as heavy metals are concerned. We get better light with less consumption if we use LED lamps.

**Pappa :** There you are! So, by using LED bulbs, we can save energy. In other words, we can improve the efficiency.

**Bunti :** So obviously, if we save electricity like this, our increasing demands can be met to certain extent and load shading can be reduced!

**Pappa :** Correct! That is why our government is also promoting use of LED lamps by making them available in subsidized cost.

**Bunti :** But Pappa, there should be awareness campaign launched for such efficient use of electric energy.

**Pappa :** Yes, true! The government is also doing it and for that in 2008, our government has launched nationwide action plan on climate change which outlines eight national missions including National Mission on Enhanced Energy Efficiency.

**Bunti :** What did you say Pappa.... Action plan on climate change?

**Pappa :** Yes!

**Bunti :** But what is the relation between climate change and energy efficiency?

**Pappa :** Very very close relation!

**Bunti :** How? Pappa?

**Pappa :** We get electricity through thermal power stations. About 71% of electricity consumed in India is generated by thermal power plants. In fact, thermal power is the "largest" source of power in India. There are different types of thermal power plants based on the fuel used to generate the steam such as coal, gas, and diesel. But more than 62% of India's electricity demand is met through the country's vast coal reserves.

**Bunti :** Ohh! I understand. When we burn coal or other fossil fuels to generate steam, obviously lot of environmental pollution takes place.

**Pappa :** Not only that, due to carbon emission in huge amount it contributes to global warming. So we must use electricity judiciously.

**Bunti :** Yes, I know! We have to switch off all electrical gadgets when they are not in use.

**Pappa :** Correct! But this should not happen only in our homes; but in offices, at public places such as theatres, auditoriums, public halls and even in railway trains. We have to switch off all fans and lights when they are not in use.

**Bunti :** Also, we have to use air conditioning machines in the temperature range of 24 to 26 degree centigrade to minimize energy consumption.

**Pappa :** Correct!

**Bunti :** But Pappa, why don't we go for solar energy? Because, we get lot of sunlight in our country.

**Pappa :** Yes, solar energy is a very good option for our country. Moreover, it is a clean source of energy and does not cause any pollution. India's pledge to reduce its carbon emissions relies heavily on increasing the generation of solar energy. India pledged at the United Nations Conference on Climate Change in Paris last year to slow the rate at which it emits greenhouse gases by one third over 2005 levels by 2030. Our government is also promoting the use of solar energy not only for generation of electricity, but also for heating water, drying processes in industries and agriculture, etc. But there are some major hurdles...

**Bunti :** Cost! Right?

**Pappa :** Yes cost of solar panels is one difficulty and the other is how to get space for mounting solar panels?

**Bunti :** Hmm...

**Pappa :** But our scientists are also working hard on this issue and recently, they have come up with an innovative idea!

**Bunti :** Innovative idea? Which one?

**Pappa :** A solar tree!

**Bunti :** Solar tree? Sounds very interesting!

**Pappa :** Yes! Acquisition of land to develop roads, factories and other infrastructure is a sensitive issue in our country. Many of the times it that has led to violent protests from displaced people.

**Bunti :** So?

**Pappa :** The basic idea of making this 'solar tree' is to harness maximum solar power in the least possible area requirements.

**Bunti :** How?

**Pappa :** The solar tree contains photovoltaic panels placed at different levels on branches made of steel. It takes about four square feet of space to produce five kilo Watt power which otherwise would have required four hundred square feet of space. Almost hundred times the space is saved due to this indigenous design. Scientists estimate the energy generated by a solar tree would be sufficient to light up five homes.

**Bunti :** Ohhh.... That's something great! Our scientists have made it?

**Pappa :** Yes! Indian scientists at the CSIR-Central Mechanical Engineering Research Institute, a constituent laboratory of Council of Scientific and Industrial Research, that is CSIR in Kolkata have designed it and they are hoping that it will help overcome one of the key challenges the country faces in the generation of solar power.

**Bunti :** But Pappa, how to clean solar panels in the course of time, because they are at certain height from the ground level.

**Pappa :** Very good question, Bunti. In fact our scientists have given a very good thought on this issue as well. The solar tree is facilitated with water sprinkler at the top for self-cleaning of panels, that increases the efficiency of the solar panels.

**Bunti :** That's the great idea!

**Pappa :** Bunti, there is another important feature of the solar tree...

**Bunti :** Which one, Pappa?

**Pappa :** One can even change the angle of photovoltaic panels mounted on this tree.

**Bunti :** That means, as the direction of sun rays change, we can change the direction of solar panels so that they will face the sun.

**Pappa :** Absolutely true! It increases the efficiency. And also by holding the photovoltaic panels at a higher height, on an average it gets more sunrays for one hour in a day. As a result, it is possible to harness ten to fifteen percent more power in comparison to a conventional layout on ground.

**Bunti :** Pappa, I wanted to know more about the efforts made by our government and even other organizations. I will do net surfing for that.

**Pappa :** Bunti, you will get information on net, but I will tell you one more way to get this information in detail... and it is I think better way!

**Bunti :** Which one Pappa?

**Pappa :** One of my batch mates, Sanika Shenoy is running a NGO which works for awareness campaign for energy consumption and promoting innovative ways for enhancing energy efficiency. Tomorrow we will visit her office and discuss with her about all your queries.

**Bunti :** But Pappa, my school?

**Pappa :** You can take off from the school for one day... after all you are not going to the school for good cause!

**Bunti :** Okk Pappa, done!

**Pappa :** Fine. I will now call Sanika and take her appointment.

***(Change over Music Piece)***

*(Bunti has come to the office of Sanika Shenoy along with his Pappa. Pappa knocks the door of the cabin of Sanika Shenoy asking her permission to enter in)*

**Pappa :** May I come in?

**Sanika :** *(from inside)* Yes, sure!

*(Pappa pushes the door... enter the cabin)*

**Sanika :** Welcome Manish! Meeting after so many years...

**Pappa :** Yes... though we are in touch through social media...

**Sanika :** (To Bunti) Hello, young scientist... how are you?

**Bunti :** Fine!

**Pappa :** Beta, she is Sanika... Dr. Sanika Shenoy!

**Sanika :** Hi! What's your name?

**Bunti :** Nilesh... but all call me as Bunti!

**Sanika :** (Laughing) okk... I will also call you Bunti! Is it fine?

**Bunti :** Ok Madam!

**Sanika :** Ohh Bunti, don't call me 'Madam'... No formalities... Call me 'Didi'! Ok?

**Bunti :** Yes!

**Sanika :** Okk! Let's come to the point now. In what way can I help you?

**Pappa :** Sanika, you are actively working in the awareness programmes related to energy issues and also promoting better ways to enhance efficient use of energy...

**Sanika :** Yes!

**Pappa :** So we want to know more in this field about the efforts which are being done by your NGO, other NGOs like yours and also about various plans and schemes made by our government.

**Sanika :** Yes, sure! In fact, it's my pleasure to share all this information with you and I will be glad if you can spread this information to your neighbourhood.

**Bunti :** Yes Didi. I will do it.

**Sanika :** That's good! As a NGO, we spread the message of how efficiently you can use energy resources; not at household level only but also in industries, transport systems, commercial premises, etc. Moreover, we work with government agencies... take their help and cover rural as well as urban areas.

**Pappa :** That's great! In fact our government is doing many such efforts to increase energy efficiency.

**Sanika :** Yes, true. In 2015 our Hon. Prime Minister has launched a scheme called "*Prakash Path*" urging people to use LED lamps in place of other lamps to drastically cut down lighting power requirement.

Moreover, energy efficient fans at subsidised price are offered to the electricity consumers by the electricity distribution companies to decrease peak electricity load.

**Bunti :** I was knowing about LED lamps but not about energy efficient fans!

**Sanika :** We are also promoting the use of non-conventional source of energy such as solar energy. In fact, India was the first country in the world to set up a ministry of non-conventional energy resources, in early 1980s.

**Pappa :** Ohh really? I was not aware about this!

**Sanika :** The energy policy of India is largely defined by the country's expanding energy deficit and increased focus on developing alternative sources of energy, particularly nuclear, solar and wind energy. India is using Renewable sources of energy like hydel energy, wind energy, and solar energy to electrify villages.

**Bunti :** Didi, what is about nuclear energy?

**Sanika :** Yes, nuclear power is the fifth largest source of electricity in India after thermal, hydroelectric and renewable sources of electricity. As of 2016, India has twenty two nuclear reactors in operation at seven sites; having an installed capacity of six thousand seven hundred eighty mega Watt and producing a total of more than thirty thousand giga Watt of electricity. Eleven more reactors are under construction to generate an additional eight thousand mega Watt of electricity.

**Bunti :** If this happens, then we will get rid of the load shading and power cuts!

**Sanika :** Consumers, particularly those who are ready to pay a tariff which reflects efficient costs have the right to get uninterrupted twenty four hours supply of quality power.

**Pappa :** Yes, absolutely correct. But it's a challenging task.

**Sanika :** About fifty six percent of rural households have not yet been electrified even though many of these households are willing to pay for electricity. Determined efforts should be made to ensure that the task of rural electrification for securing electricity access to all households and also ensuring that electricity reaches poor and marginal sections of the society at reasonable rates.

**Pappa :** But Sanika, to have access of electricity to all households, we have to use the available electricity judiciously.

**Sanika :** Yes! It's our moral responsibility and intentional efforts should be done from our side as well.

**Bunti :** Which kind of efforts, Didi?

**Sanika :** Apart from judicious use of electricity, we have use start rated gadgets.

**Bunti :** But, they are comparatively costlier.

**Sanika :** May be, but these gadgets are ensured to run on less power. So we do not have to pay more in recurring manner.

**Pappa :** That's true!

**Sanika :** Now a days, not only electrical gadgets like air conditioning machine, refrigerator, ovens etc are star rated but star rating plans have also been developed by the 'Bureau of Energy Efficiency' of Ministry of power in association with Petroleum Conservation Research Association (PCRA) for LPG stove.

**Bunti :** Ohh!

**Pappa :** More stars indicate less gas consumption and thereby more saving!

**Sanika :** Correct Manish! Reducing energy use is also seen as a solution to the problem of reducing greenhouse gas emissions. So now we have to insist on star rated gadgets while purchasing. The Bureau of Energy Efficiency was set up by the Energy Conservation Act 2001. This Act requires large energy consumers to adhere to energy consumption norms; new buildings to follow the Energy Conservation Building Code; and appliances to meet energy performance standards and to display energy consumption labels.

**Bunti :** Yes Didi! I understand. I have read about 'green buildings' which use conventional sources of energy in less amount and largely depend upon non-conventional sources such as solar energy for heating water, electricity etc.

**Sanika :** Yes! In fact for lighting our homes, the structure should be such that maximum area is exposed to sunlight and air.

**Bunti :** So automatically we will not use electricity for lamps and fans!

**Pappa :** So open the windows... I always insist!

**Sanika :** See...Improvements in energy efficiency are generally achieved by adopting a more efficient technology or production process or by application of commonly accepted methods to reduce energy losses.

**Pappa :** Yes, in automobile industry also new technology is being tested so that we will not rely on fossil fuels such as diesel and petrol.

**Sanika :** According to the International Energy Agency, improved energy efficiency in buildings, industrial processes and transportation could reduce the world's energy needs in 2050 by one third, and help control global emissions of greenhouse gases.

**Pappa :** Hopefully, we will achieve this!

**Sanika :** Why not? Energy efficiency and renewable energy are said to be the *twin pillars* of sustainable energy policy and are high priorities in the sustainable energy hierarchy. In many countries energy efficiency is also seen to have a national security benefit because it can be used to reduce the level of energy imports from foreign countries and may slow down the rate at which domestic energy resources are depleted.

**Bunti :** We also have to give priority to sort out this energy crisis and work on the energy efficiency! Didi, really I got very valuable information from you. Thanks for sharing your valuable time.

**Sanika :** (Laughing) No formalities dear! Now I will just call for coffee!

**Pappa :** Yes, and we have to drink it by taking break...otherwise it will become cold and need to consume more fuel to make it hot again!

**(All laughs)**

**Bunti :** (Laughing) Yes! You said it Pappa!

**(Music piece. Episode ends.)**

*Written by*

**Hemant Lagvankar**

hemantlagvankar@gmail.com