**Professor Jack Singh:**

I’m Professor Jack Singh from the La Trobe University Centre for Technology Infusion, and this is Australia’s first zero emission house.

Let me invite you into the house and show you what we have done for energy management in this house. The Australian zero emission house has got features that allow you to monitor energy usage in real-time and control it. It has got other features like alternate energy sources. The bottom line is what we want to do is make sure there is zero emission from this house. So we are using energy from the alternate energy sources and at the same time using energy from the grid to make sure there is a balance.

The entire house is managed by the smart energy management system which was developed by our researchers at La Trobe University and can be controlled by a single touchscreen panel as shown up here.

**Ani Desai:**

Now this homescreen is showing you a complete snapshot of what is happening within the smart home. It identifies where you’re consuming the most amount of energy showing different colours, red, green, and orange. So at a glance you can pick up what is happening in the house. So if you click on a particular area it shows you a summary of how much energy you’ve spent. Then what you can do from here is you can start drilling down into the details of the energy consumption for that particular area.

On the right of the screen what you see is a summary of all your consumption. So right of the top it’s showing you how much water is being consumed in the house. In the middle it’s showing you a summary of how much energy is being generated by the solar system installed here and how much you’re consuming off the grid. And at the bottom it’s showing you ‘at a glance’ view of where the energy’s going in the house. So here you can see that your air conditioning system and water heater are amongst the appliances that are consuming the most energy. If you click on them like I did now you can actually see when it was consumed. So in the morning you were using the hot water system.

At the bottom of the screen it shows you the summary of the house from today, the month to date, and a monthly estimate. At the left of the screen, what you can see is the different appliances that can be controlled in the smart house.

At the top you can see is a control for the heating and cooling of the home, then it’s the car charger for the electric car. There is a special button here which is called the stand-by switch. What it allows you to do for example, is if you go to bed, you can just put the house into standby mode and all the appliances in the living area, the kitchen appliances, they will be switched off or put into the standby mode so you can go to bed and there’s no more standby energy being used in the house.

This house is installed with our energy management platform. What I mean by platform is that not only can you use the touchscreen device, but you can also connect to the energy management system from your office desk, or your smart device such as your mobile phone here. Now what I demonstrated before is the ability to control different circuits in your home. So for example I can demonstrate that you can switch on and off your lighting from your mobile phone. The other important ability is to be able to put your house into standby mode. So for example if I leave for work and the house tells me it is still consuming energy more when I’m not at home. So what I can do is I can connect to the system remotely from wherever I am at and put my house into standby mode. So you see, the television which is in the living area, it switched off. What happened in addition to this is that the appliances that were in the kitchen area, they were also switched off. So even if I am not at home, I can securely connect to my home and minimize the energy consumption.