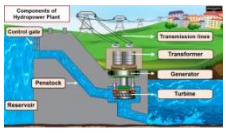
Frame	OST (Eng)	Subtitles (Eng)	Graphic Instruction	Instructions for the designer	VO Script (Eng)	Reference Image
1	Hydropower Plant		Graphic along with animation of a flowing river is to be shown on the frame 1.			
2			Show a village with many houses, huts, trees and a green land. Also show a river flowing out from mountains in outskirt of a village.	Show a village and focus on different houses. Show a river flowing from mountains. Animation has to be done in sync with the vo.	There was a small village with a growing demand for electrical energy. Let's see how the river flowing by the village can be used as a **conventional source of energy** to produce electricity.	
3		Hydropower plant is used to generate electricity by harnessing the energy of flowing water.	Show a hydropower plant built on a river.	Show the hydropower plant and then focus on one of the house in the village.	**Hydropower plant** is used to generate electricity by harnessing the energy of flowing water.	
4	High Raised Dam Water Reservoir Control Gate Penstock Turbine Generator Transform		Show the components of a hydropower plant built on a river.	Show each and every component of a hydropower plant one by one and show labels in sync with the vo.	The components of a hydropower plant involve **high raised dam, water reservoir, control gate, penstock, turbine, generator, transformer, power lines and tailrace.**	

	er Power Lines Tailrace					
5		The working of a hydropower plant is fairly simple, but taming the power of water is a major challenge.	Show a hydropower plant built on a river.		The working of a hydropower plant is fairly simple, but taming the power of water is a major challenge.	
6	Potential Energy Electrical Energy		Show a reservoir portion and a dam and a house with electricity (showing glowing rooms).	Divide the screen into two halves. In one half show the reservoir and a dam and in other, show a house with glowing rooms.	Hydropower plant converts the **potential energy** of water into **electrical energy** through multiple steps.	
7		High rise dams, constructed on rivers, obstruct the flow of water and thus, collect the water in larger reservoirs at a height. In this way, the water level rises and the kinetic energy of flowing water is converted into potential energy.	Show at the backside of a power plant where water is collecting. Show a hydropower plant	In sync with the vo, first show the water reservoir portion And then show animation of hydroelectric power plant.	High rise dams, constructed on rivers, obstruct the flow of water and thus, collect the water in larger reservoirs at a **height.** In this way, the water level rises and the **kinetic energy** of flowing water is converted into **potential energy.**	
8		There are	Animation of	Focus on	There are **control**	

		control gates which are built on the insides of a dam. The stored water is controlled and released from these gates. Water, when released, flows through the penstock due to gravity towards the turbines. During this, the potential energy of the stored water starts to convert into kinetic energy.	control gate opening. Animation of water flowing through control gate, penstock, and turbine.	control gate and then show the opening of control gate. At this line, show the animation where water starts coming out from the control gate in the penstock and moves towards the turbine. Animation is to be done in sync with the vo. Zoom on the water flowing through penstock.	**gates** which are built on the insides of a dam. The stored water is controlled and released from these gates. Water, when released, flows through the **penstock** due to **gravity** towards the turbines. During this, the **potential energy** of the stored water **starts to convert** into **kinetic energy**.	
9		At the bottom of the penstock, water possesses only the kinetic energy, which is used to rotate the turbine. Thus, the kinetic	Show animation of water moving to the penstock and towards the turbine and then show the turbine rotating due to flowing water.	Animation has to be done in sync with the vo. Show turbine rotating.	At the **bottom** of the penstock, water possesses **only the kinetic energy**, which is used to rotate the turbine. Thus, the kinetic energy of water is	

		energy of water is now converted into rotational energy of the turbine.			now converted into **rotational energy** of the turbine.	
10		The rotating turbine further rotates the shaft in the generator, thus producing electrical energy by electromagn etic induction.	Show animation of turbine rotating and then focus on the upper portion towards generator, which is also rotating.	Animation should be smooth and in sync with the vo.	The rotating turbine further rotates the shaft in the **generator**, thus producing **electrical energy** by **electromagnetic induction**.	
11		The generator is connected to a transformer which increases the voltage and then the electricity is transmitted to the power grid for further distribution.	Show through an animation further moving from generator to the transformer. Show electricity transmitting through power lines fixed on the electric pole.	Animation to be done in sync with the vo.	The generator is connected to a **transformer** which increases the **voltage** and then the electricity is transmitted to the power grid for further distribution.	
12		The used water is carried through pipelines called tailraces that re-enters the river.	Show animation by moving towards the tailrace where water is coming out of the outlet and re-enter the river.	Animation to be done in sync with the vo.	The used water is carried through pipelines called **tailraces** that **re-enters the river.**	
13	Head		Show a cut section of a hydropower plant.	Animation to be done in sync with the vo.	The **power** generated by hydropower plant majorly depends upon two factors; **head height** and	

	Height Flow Rate	Head height is the difference in height between where the water enters and leaves the penstock. The flow rate is the volume of water flowing through the penstock per second	Show an arrow to demonstrate both head height and flow rate. Show in animation, the hydropower plant focusing the penstock.		**flow rate**. Head height is the difference in height between where the water enters and leaves the penstock. The flow rate is the volume of water flowing through the penstock per second.	
14		This process of generating electricity follows the **law of conservation of energy** in which the potential energy of the water is converted into electrical energy through multiple steps.	Show an animation of hydropower plant constructed on a river.		This process of generating electricity follows the **law of conservation of energy** in which the potential energy of the water is converted into electrical energy through multiple steps.	
15	Learning Outcomes	A learner will be able to: 1. Identify the		Use a light pastel colour background. And text in dark colour.	Learning Outcomes: A learner will be able to:	

		parts of a hydropower plant. 2. Construct a working model of a hydropower plant. 3. Apply the concept of conservation of energy in real life. 4. Find out the other conventional sources of energy		Add fade transitions to bring the on screen text in sync with the vo.	1. Identify the parts of a hydropower plant 2. Construct a working model of a hydropower plant 3. Apply the concept of conservation of energy in real life 4. Find out the other conventional sources of energy	
16				General Instructions: Add background music and sound effect wherever required. Arial font is to be used for		

				the whole development. Callouts, subtitles colour is to be grey and text colour is to be white.		