Storing Up Energy.

There is about five times as much water power available during a big spring tide on the Severn as there is during a small neap tide, and it is quite impossible to generate power at a constant rate during the day, whatever system of turbines and turbine working may be adopted. It therefore becomes absolutely necessary to store part of the energy obtained from turbines working in the dam which is available during the periods of spring tides and during the period of working, in order to make good the deficiency of energy which exists during the neap tides, and during those periods when the turbines are not working.

The method of storage which has been adopted is that of pumping sea water from a low level to a high level when surplus energy is available, and of using the same water to drive other turbines in passing from the high level to the low level at periods when the stored-up energy is required for industrial purposes. An artificial salt-water lake has been provided for at a high elevation in order to achieve the object desired. It is designed to force the water up from the low level of the River Wye in a tunnel driven through more than a mile of solid rock, and made to discharge into the lake. This tunnel would be 40ft. in diameter, or nearly four times the area of an ordinary double-line railway tunnel, and would be the largest tunnel of its kind in the world.

Enormous Enterprises.

There would be two separate installations in connection with the power scheme:—(1) A great concrete dam or barrage across the Severn within which sluices and turbines would be installed for utilising the power of the tides, and with which would be combined the road bridge and the railway bridge over the Severn at this place; and (2) an energy storage plant comprising the great high-level lake and tunnel in combination with an immense pumping and turbine power house on the banks of the tidal portion of the Wye. The site which has been selected for the great dam or barrage lies close to the line of the Severn Tunnel. An almost ideal site is provided. At this place the estuary is about 2½ miles wide, with low-lying country on either side. The greater part of the bed of the river is exposed dry at low water, and there are great sheets of rock known as "English stones," covered with seaweed, occupying an area of very nearly a square mile.

The "English Stones."

The upper structure of these rocks is what is known as "Keuper marl," and between these rocks on the English side and the rocks on the Monmouth shore side there is a wide deep channel worn out of the solid Pennant sandstone, known as "The Shoots." The rocks on either side shelve steeply into this deep gully, which is rather wider and very much deeper than the Thames at Westminster. It is proposed to construct the hydro-electric barrage along the edge of these rocks on either side of the river, utilising "The Shoots," or deep gully, as a tail race for carrying away the water from the turbines, and an ingenious form of dam has been devised of great structural strength in reinforced concrete to suit the circumstances of the case. Within this dam there will be chambers, in which the turbines and generating machinery will be housed.

The method which it is proposed to adopt in order to utilise the power of the tides is to trap the water in the upper part of the estuary above the dam at high water so as to create an artificial difference in the level between the water thus impounded above the dam and the water in the estuary below the dam, for a period of several hours round about the period of low tide. During these hours, when the difference of level exists between the water inside and the water outside, sufficient water inside will be allowed to pass through the turbines in the hydro-electric barrage to generate upwards of a million horse-power.

Such are the main lines of the Ministry of Transport's stupendous scheme.

Building Supplies in Christchurch.

"Timber and cement both plentiful," was the text of an optimistic report by the building trade authorities early this month. The strike in Wellington has diverted to Lyttelton several shiploads of timber consigned from West Coast mills, and imported cement is now available in fairly large quantities all over the North and South Islands. Though the amount of timber coming in is not yet sufficient to build up reserve stocks, there is ample on hand for everyday requirements.

"The supply has been better for some time," said a contractor. "The waterside strike in Wellington has benefited Canterbury already, because we are getting a large share of the usual North Island consignments. Even before the strike an improvement was evident, due to the slack demand in Australia, where foreign timbers are in increasing use. At the present time there are three boats loading on the West Coast for Lyttelton. The supply of hardwood has also been heavier lately."

"How will that affect house-building operations?" he was asked.

"There is bound to be a quiet spell ahead on account of money tightness, but so far builders have plenty of work in hand and in sight," he replied. "So far every carpenter is in employment, and business is steady and sound. The demand for houses shows no sign of easing off, and prices all round are as high as ever. Cement is not hard to obtain, and that is helping work."

Other reports say that Oregon timber is being shipped freely to New Zealand, and there are hints of a reduction in price.