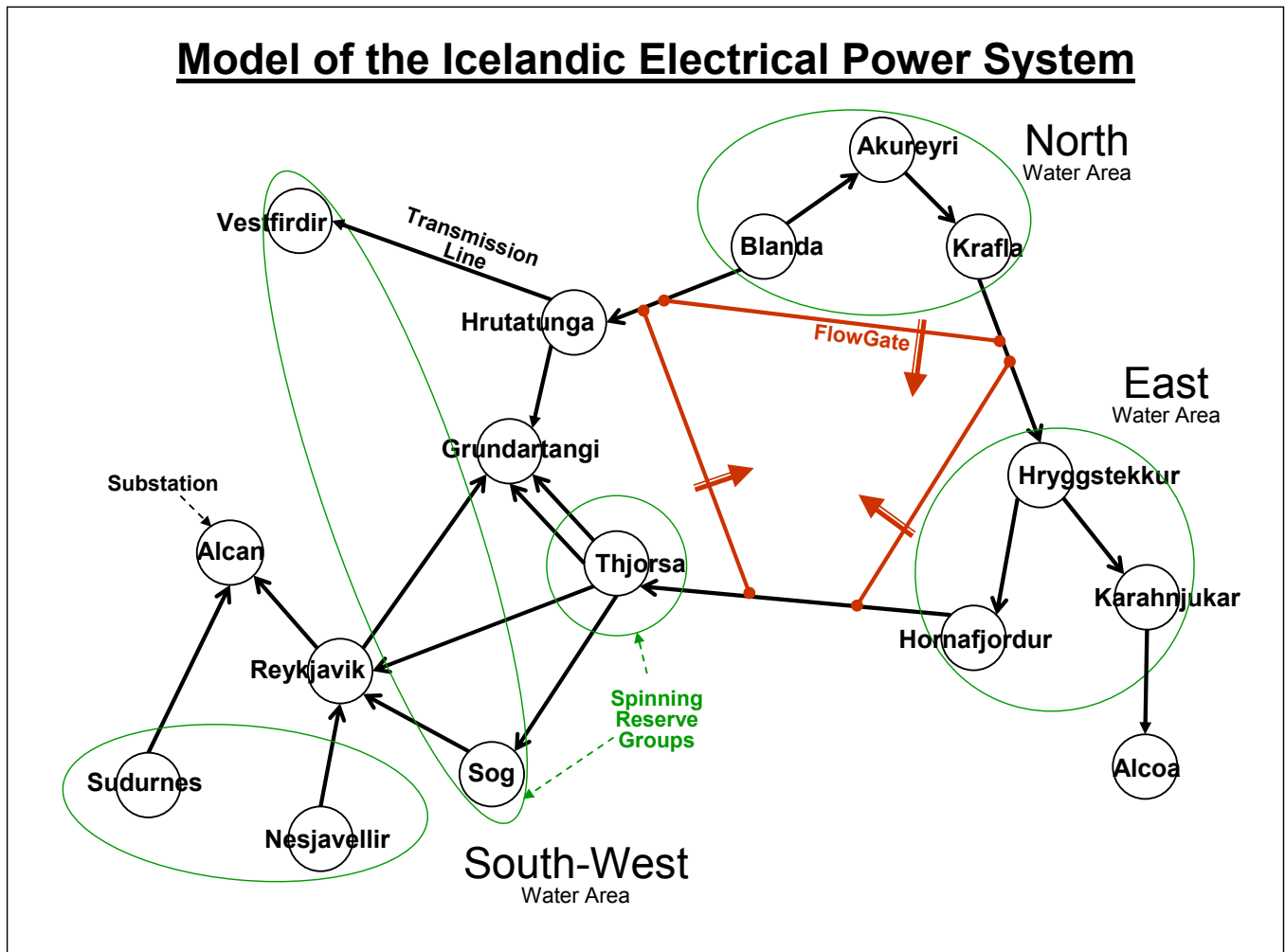


HYENA is a computer model for system studies of Electrical Power Systems where the Production Capacity is mainly Hydro and Geothermal. HYENA uses a combination of Simulation and Optimization techniques. HYENA has been developed for Landsvirkjun, the National Power Company in Iceland.

Figure 1 shows a configuration of the Icelandic electrical power system in the HYENA computer model.

The model consists of 17 substations interconnected by 20 transmission lines. 3 flowgates contribute to bottlenecks between water areas in the transmission system. 40 hydro and geothermal power stations are connected to the substations.

Figure 1



In figure 1 the most complex and interesting parts are the Thjorsa substation and East Water Area

Figure 2 shows power stations in Thjorsa river basin in the South-West.

Skafta Reservoir, Nordlingaalda Pump Station and the 6th phase of Kvislaveita are undergoing an environmental assessment but it is believed that the other planned projects will not have significant environmental opposition.

For the sake of simplicity, several major features like routes of natural flow, spillage and leakage are not shown in figure 2.

There is no local market in the Thjorsa substation.

Figure 2

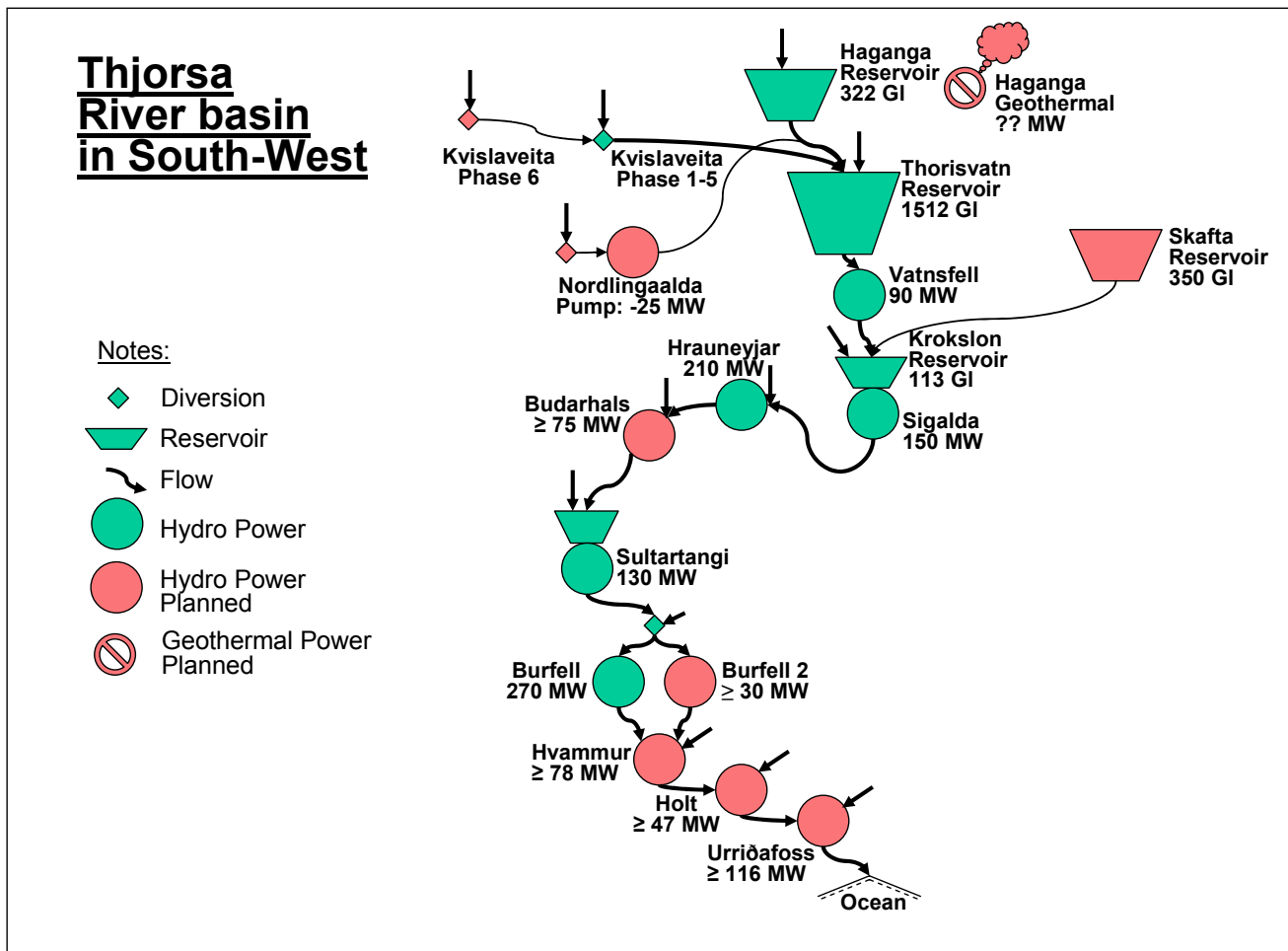


Figure 3 shows the development of Jokulsa River Basin in East Iceland.

The projects under construction will be fully operational in the autumn of 2007.

Figure 3

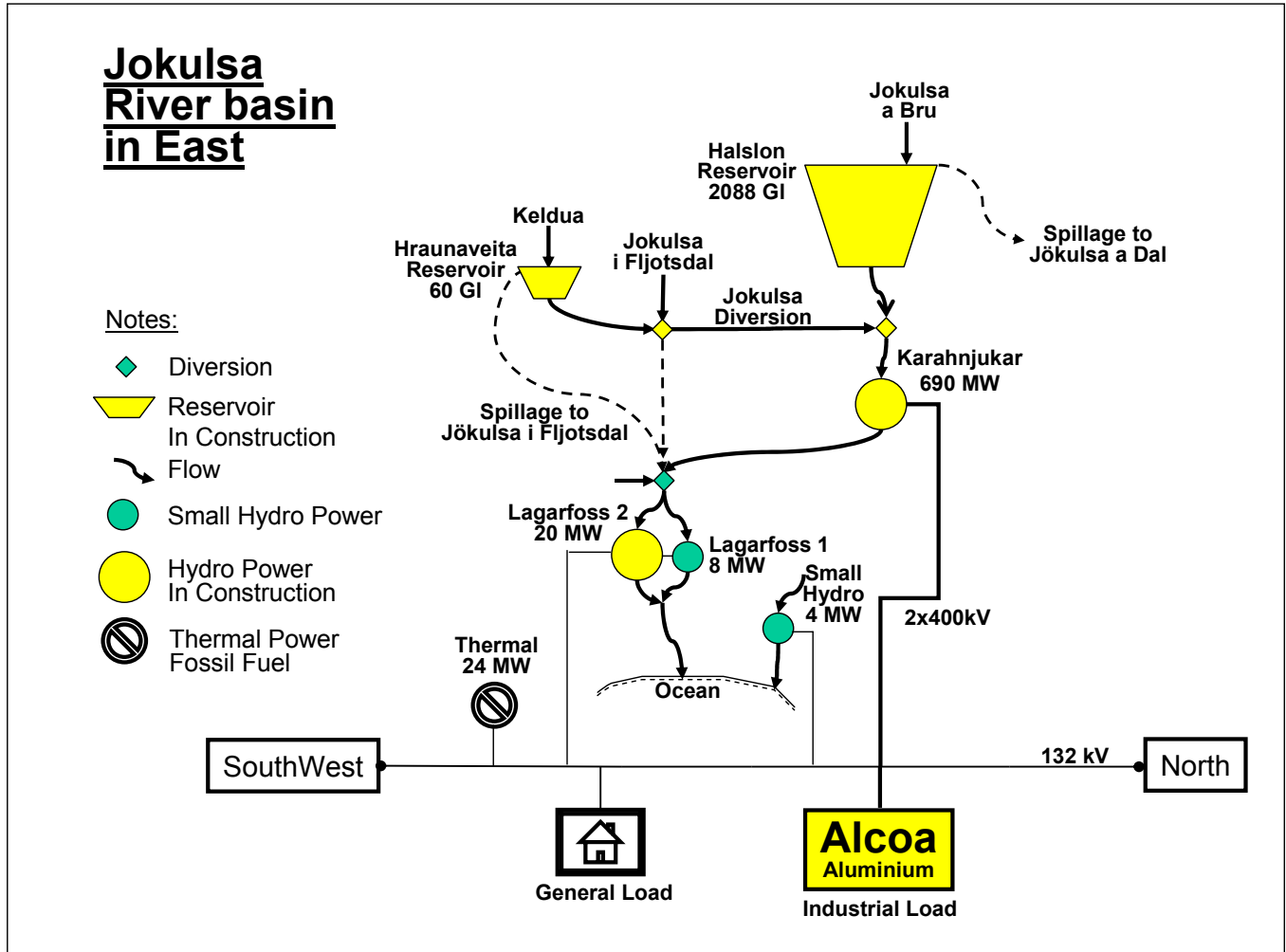


Figure 4 shows in a diagram the energy balance in the 3 water areas: South-West, North and East.

The figure shows average yearly energy flows as calculated in the HYENA simulations.

Available hydro is either regulated, which means that it can be stored in a seasonal reservoir, or unregulated and has to be used immediately. Geothermal stations are modelled as run-of-the-river hydro stations with a constant inflow year-round.

The figure shows the abundance of energy in the North and this energy has to be transmitted to the other water areas in South-West and East.

Figure 4

