

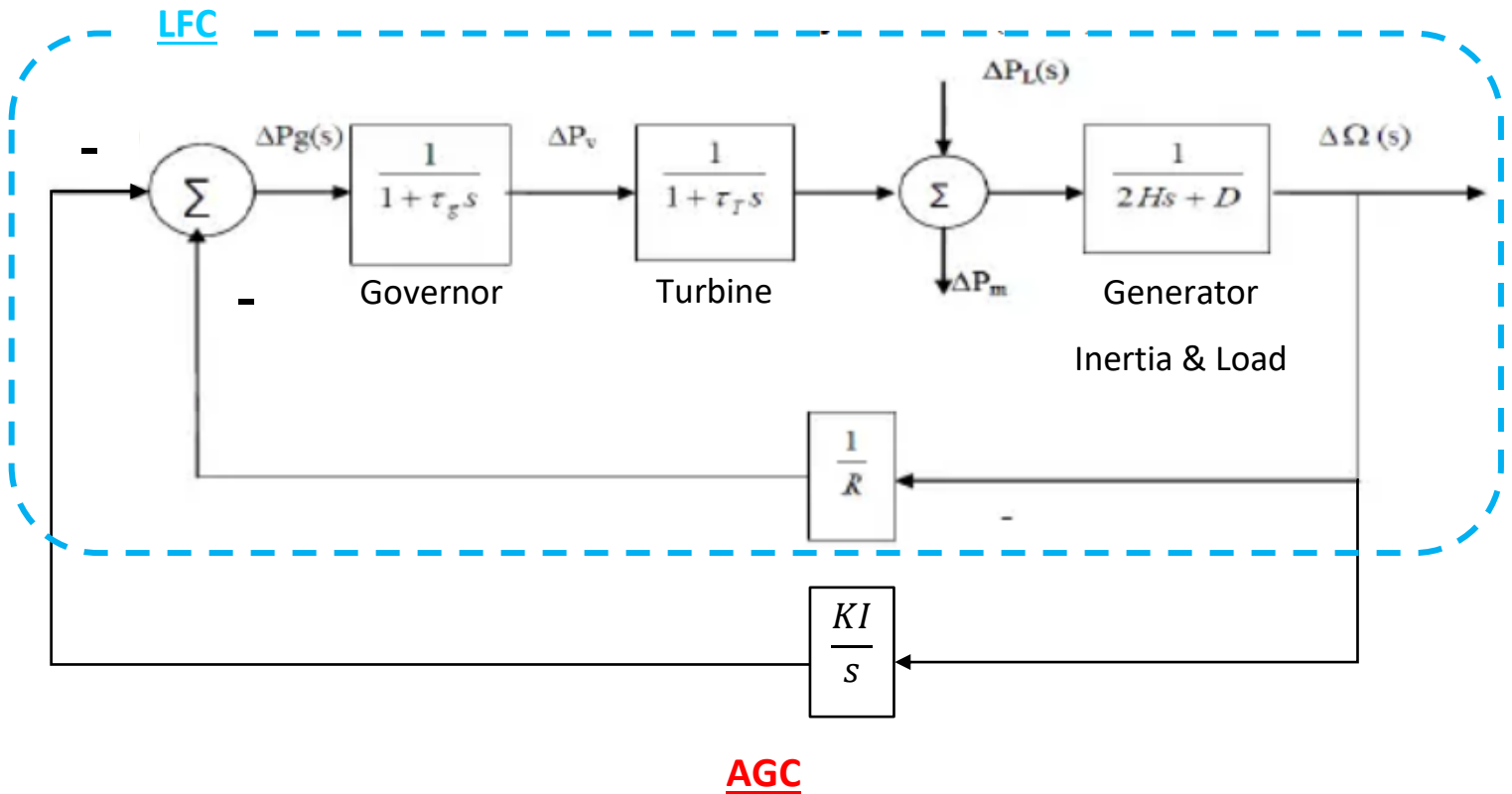
Automatic Generation Control (AGC)

Introduction

As the system load changes continuously, the generation is adjusted automatically to restore the frequency to the nominal value.

Block diagram

The block diagram of the **A**utomatic **G**eneration **C**ontrol loop for steam turbine power system can be represented by:



Example:

A power station has the following parameters:

Turbine time constant $\tau_T = 0.5$ sec

Governor time constant $\tau_g = 0.2$ sec

Generator inertia constant $H = 5$ sec

Generator speed regulation $= 0.05$ per unit

The load varies by 0.8% for 1% change in frequency.

A sudden load change 0.2 per unit.

Construct a SIMULINK block diagram to simulate the (AGC) for $K_I = 7$

Solution

Value	Parameter
Gain	
1/0.05	
Gain1	
7	
Step	
0	Step time
0	Initial value
0.2	Final value
Sum	
round	Icon shape
--	List of signs
Sum1	
rectangular	Icon shape
+-	List of signs
Transfer	
[1]	Numerator coefficients
[0.2 1]	Denominator coefficients
Transfer1	
[1]	Numerator coefficients
[0.5 1]	Denominator coefficients
Transfer2	
[1]	Numerator coefficients
[10 0.8]	Denominator coefficients
Integrator	
0	Initial condition

