To Integrate or Not to Integrate: That Is The Question

NWHA Technical & Operations Seminar
Hood River, Oregon
May 7-8, 2015
Automate and Integrate What?

- Unit Metering
- Start/Stop Sequences
- Unit Auxiliaries
- Remote Communications
- Unit Governor?
- Unit Voltage Regulator?
- Unit Protective Relays?
The March of Automation

• Whether PLC-based or Proprietary, the performance, capability and reliability of unit and plant automation systems have improved dramatically since the 1980’s.
Advanced Graphical Operator Interface

• Complete unit and plant control and monitoring from control room.
• PC-based and/or Proprietary platforms are available from ABB, Emerson, GE, Schneider-Modicon, Siemens, Rockwell, Wonderware.
Why Not Integrate Everything?!

Pros
• Simplification
• No relay logic
• No external switches
• No external meters

Bottom Line
• Reduced wiring
• Reduced cost

Cons
• Difficult to troubleshoot ("Who wrote this software?!")
• Works-In-A-Drawer = Eggs-In-One-Basket
• Operator confusion (multiple screens)
• Data throughput can become an issue
Real-Time Hydro Governor

- North American Electric Reliability Corporation (NERC) requires governor performance verification.
- AGC’s advanced governor algorithm is the first governor model to be accepted by NERC in many years.
Uncompromised Performance

• Governor performance is uncompromised when the governor is stand-alone; separate from an Unit + Plant controller.

High-performance hydro governors are more than “just a subroutine.”
Closed-Loop Performance

• In a stand-alone governor, all time-critical governor inputs and outputs are hard-wired for optimum performance.
Peer-to-Peer Communication

- All modern digital governors and voltage regulators offer secure communication protocols to make high-level data exchange easy.
Specialists vs. Generalists

• Providers of stand-alone governors and voltage regulators are the specialists, the experts in their respective fields (frequency and voltage control).

Providers of plant automation systems are usually generalists.
Separate Factory Test

• Stand-alone governors enable factory acceptance (and future performance) testing, separate from the overall plant controller.
No Middleman

• Is it not better to work directly with the control provider, with no middleman?
Clear Scope

- Clear scope dividing lines can save precious time and money during start-up.

Stand-alone systems can be tested and verified separately.
Troubleshooting

• When closed-loop governor software is embedded in a plant controller, it can be very difficult to isolate the root cause of a performance problem, like sluggish on-line response to frequency disturbances.
Growth and Expansion

• Expansion of the plant control system will never degrade the performance of a stand-alone governor.

Tested and verified during installation, a standalone governor will always meet FERC requirements.
Thank you for your attention!

rogercj@americangovernor.com
425-821-8076
About American Governor

Founded in 2000, American Governor (AGC) quickly became a leading provider and acknowledged expert in hydroelectric governor systems. With over 600 years of combined hydro governor experience, we have provided spare parts, field service, and/or training to over 1,500 hydro plants in over 60 countries worldwide.

Our dedication to providing full support for legacy hydro governors provided by any OEM, coupled with our engineering capacity to produce the most innovative digital governor systems, explains why we have developed a loyal and dedicated following in the industry.
American Governor: Looking Forward

With over 25 gigawatts of digital governor conversion experience under our belt and more coming on-line every day, American Governor is becoming a dominant provider of hydro governors worldwide. We regularly consult with industry and government regarding hydro’s significant contribution to grid stability. It is our honor to provide the technical expertise, equipment, training and site services to enable these plants to continue providing grid frequency support for another century.
International Presence

AGC has done business in over 60 countries worldwide.