**📑 Proposal: HMI View Selector v5.1.1 + Future Expansion**

**Developer:** Jerimey Burnside – Electronics/Controls Technician III  
**Software Version:** HMI View Selector v5.1.1  
**Primary Feature:** Prime Turbo Temp Monitor

**🔍 Current Operational Challenges**

* **Turbo Failures** on MTU 16V4000 G S engines → ~$40k–$60k each, plus downtime costs >$100k per incident.
* **Dynamic IP Assignment** makes locating pumps and opening HMIs inefficient, requiring IT support.
* **Multiple HMIs** running on the same computer waste resources and create conflicts.
* **Operator Workload** → crews must constantly monitor turbo temps, wasting labor hours and increasing human error risk.

**💡 The Solution – HMI View Selector v5.1.1**

**Already in use on my fleet in a testing phase, so far proven and stable.**

1. **Prime Turbo Temp Monitor (Core Cost Saver)**
   * Real-time turbo monitoring with 500ms refresh.
   * **Auto fan activation** when temps exceed safe threshold (default 1047°F).
   * Color/flashing alerts for low battery, turbo overheat, or fan running.
   * Reduces operator workload and prevents costly turbo damage.
2. **Dynamic IP Handling**
   * Auto-discovers pumps regardless of changing IP addresses.
   * Operators launch HMIs with a single click.
   * Eliminates IT intervention for networking.
3. **One-HMI Control**
   * Only one HMI allowed to be open at a time → reduces system resource conflicts.
   * Saves on computer hardware per spread.
4. **Maintenance Mode (Password Protected)**
   * Only authorized staff can adjust charge setpoints or turbo thresholds.
   * Adds a compliance/safety layer for engine protection.
5. **Scalability & Flexibility**
   * Configurable IP ranges (no longer locked to 10.55.10.x).
   * JSON save/load for site configurations.

**📊 Value to Liberty**

* **Turbo Protection**: Preventing one turbo failure = ~$50k saved.
* **Downtime Prevention**: Avoiding one spread downtime event = $100k–$150k saved.
* **Labor Savings**: No operator required to babysit temps → hundreds of labor hours saved annually per spread.
* **IT/Hardware Savings**: Fewer computers needed per spread; less IT time troubleshooting IP/HMI issues.

**Estimated savings per spread, per year:** $200k–$500k+.

**🚀 Recommendation**

* Adopt **HMI View Selector v5.1.1 with Prime Turbo Temp Monitor** across all Liberty spreads.
* Formalize it as a **Liberty Energy internal tool**, supported and improved through Controls/Automation Engineering.
* Recognize my role in developing and deploying this solution by expanding responsibilities to include ongoing software development.

**🔮 Looking Ahead – Version 5.2.x (Optional Expansion)**

The next logical step is solving **pump shutdowns mid-stage** — a known Liberty pain point.

Planned features for **v5.2.x**:

* **Auto Restart Function (during stage or as we come off line)**:
  + Monitors Envoltz battery state and active engine codes.
  + If safe → automatic restart attempt.
  + If unsafe → popup alert: *“Key Switch Required.”*

*\*\*only active during down hole operations by monitoring flow rate and treating pressures.*

* **Benefit**: Saves on time to act to recover rate with automation and down time for having to come offline and down time because of waiting too long to restart, worth **$50k–$200k+ per event**.

This upgrade moves the program from **equipment protection** → to **stage assurance**.

**📌 Closing Statement**

*I’ve already developed a working, cost-saving tool (v5.1.1) that protects Liberty’s fleet and operators. I’d like to formalize my contributions in a Controls/Automation Engineering role, with recognition or bonus for the program’s deployment. With support, I can continue expanding this platform into v5.2.x and beyond — directly attacking one of the biggest hidden costs in frac operations: pump downtime mid-stage.*