- Due to the JEM-EF system constraint to meet the external payload complement needs for power and fluid flow rate during the 2018-2022 timeframe to allow all of the payloads located on that platform to operate continuously at the same time, ISSP is directing PDs to design their instruments to perform within the limitation of the JEM-EF system capability in order to minimize payloads real time operation timelining

- *JEM-EF system can support the following resource utilization per payload during the 2018-2022 timeframe:

  - Maximum fluid flow per payload: **151 kg/hr**
  - Maximum Power draw per payload: **500 W**
  - Maximum accumulator volume: **2L**

* Deviation from these values above will significantly increase the likelihood of that payload complement to be timeline during real time operations of that increment, which means less continuous on-orbit operation of all the payloads in that increment at the same time

- A design flaw was recently uncovered in the Low Voltage Power Supply (LVPS) board within the Experiment Control Module (ECM), which is a subcomponent of the EXPRESS Carrier Avionics (ExPCA) that provides both 120 Vdc and 28 Vdc operational power to payloads on the ELC sites. The design flaw results in limiting the maximum temperature of the LVPS capacitors to 40°C. This temperature limit is quickly reached when two instruments, both using the 28 Vdc feed, are operating simultaneously on that ELC site. To avoid potential payloads operational constraints, the ISS Program recommends that all future ELC proposed instruments be designed to interface only with the 120 Vdc power interface.

- Payload Developers (PDs), however, still have the option to design their instruments to interface with the 28 dc power feed at the risk of that payload being operations constraint (timeline constraint) when the 40°C limit is reached, which will trigger a power shed situation to balance total power draw across that ELC. Power shedding is initiated to prevent the ECM failure and avoid total loss of science operations on that ELC.