

Inaugural Jets/HF/BSM Meeting

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Charge to Physics Working Groups

- 1. Identify the key physics observables described in the Yellow Report that pertain to your working group**

In the Yellow Report, the community identified a number of physics goals and observables required at the EIC. Each physics group should identify which of these belongs within its purview, and formulate a plan for updating the YR plots using the actual detectors (and inactive materials!) that will be part of EIC@IP6.

Charge to Physics Working Groups

2. Which 2 or 3 plots will illustrate ability of EIC@IP6 to address NAS report/YR physics?

It will be crucial to identify a subset of all the possible performance plots for your physics area that should be included in the proposal. There is a strict page limit for proposals, and they must include a detailed description of the detector systems and their cost. Consequently, each physics working group should anticipate being able to fill only a few pages in the proposal.

This, plus the limited time we have, requires identifying only a few performance plots for which your working group will carry out full simulations with the integrated EIC@IP6 detector. These most likely exist in more idealized form in the YR already. However, identifying the key plots early will allow the working group to work with the detector groups and inform the collaboration of the impact of specific technology choices.

Charge to Physics Working Groups

- 3. Are there any additional physics performance plots that would give a competitive advantage to this proposal?**

Implementing the Charge

Identify the key physics observables described in the Yellow Report that pertain to your working group

- ❑ Collect existing simulation used in YR
 - Mostly complete for jet and HF analyses – still need to look at EW/BSM

- ❑ Assign person(s) to take the lead on each observable
 - Identify critical performance metrics, ie JER, forward coverage, vertexing resolution, etc
 - Identify critical detector considerations (look to YR for guidance)
 - Interface with Software WG to incorporate analysis into validation framework – framework still evolving, need to be flexible!
 - Interface with Detector WGs to discuss detector needs – ie PID coverage, calorimeter segmentation, etc

- ❑ Possible observables: (Di)jet/HQ ALL, (Groomed) Jet Substructure, Charm Jet Reconstruction, Isolated Charm/Bottom Meson Reconstruction, Lepton-Jet (Dijet) Correlations, Hadron-in-Jet correlations, Diffractive Dijets, **EW/BSM?**

Implementing the Charge

Which 2 or 3 plots will illustrate ability of EIC@IP6 to address NAS report/YR physics?

- ❑ Anticipate only a handful of pages to describe a broad set of topics
- ❑ Identify performance capabilities germane to a wide range of observables and decide on representative plots – jet energy resolution, vertexing performance / HF reconstruction efficiency, missing transverse energy performance, ...
- ❑ Let's identify key performance plots now and start outlining our section – start with high detail and winnow down as needed

Implementing the Charge

Are there any additional physics performance plots that would give a competitive advantage to this proposal?

- Larger magnet bore – more room to fit barrel PID
- Higher Max Field – better resolution in forward region (note possibility to run at lower fields)
- 25 mRad Crossing Angle vs 35
- Different options for barrel HCal – KLM?
- ...

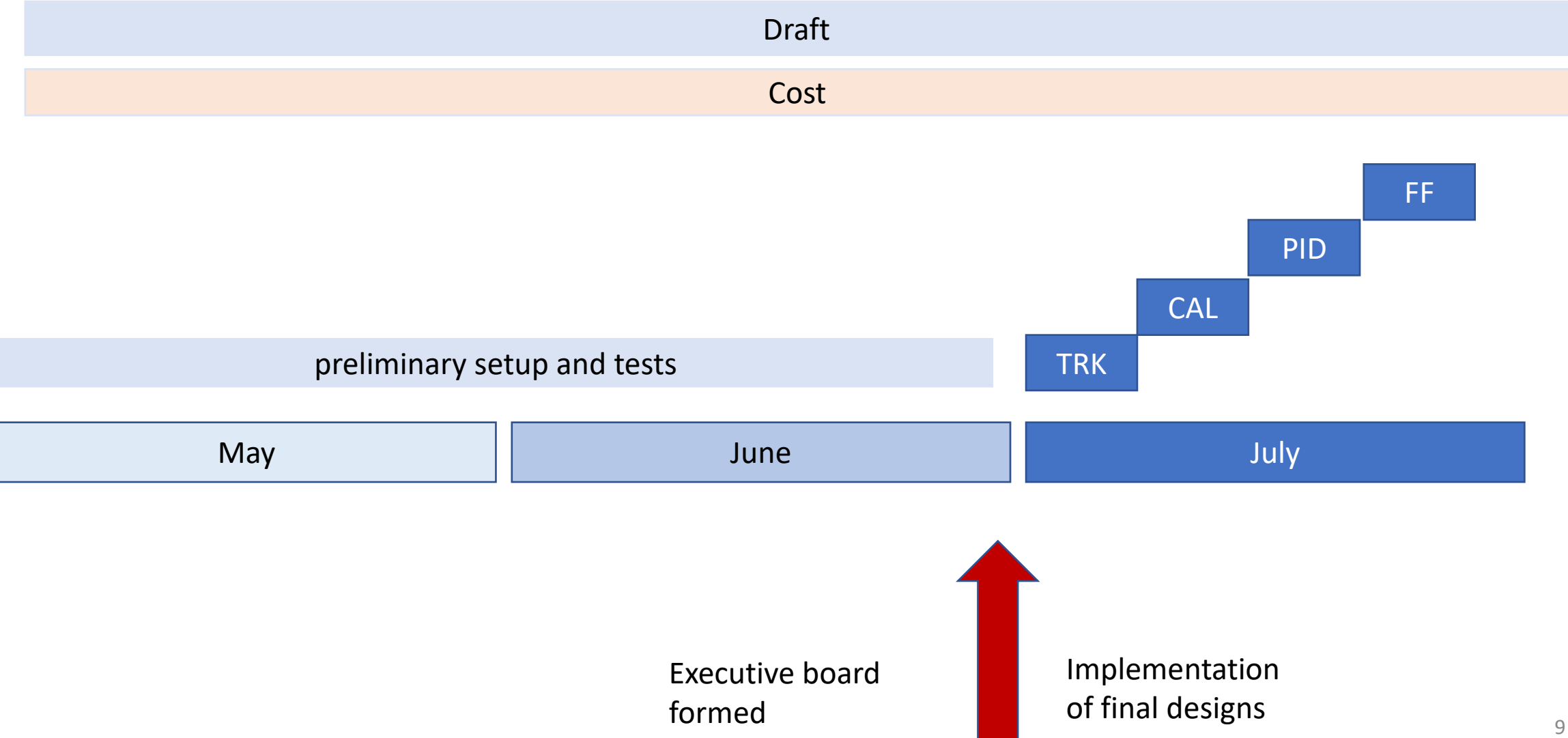
Additional Considerations

- ❑ Want common scheme for event reconstruction suitable for use in jet / event shape reconstruction – develop an energy flow algorithm
 - Allow for the evaluation of how different sub-systems interact
 - Evaluate the benefit of PID in particle 4-momentum reconstruction
 - Determine calorimeter clustering performance requirements

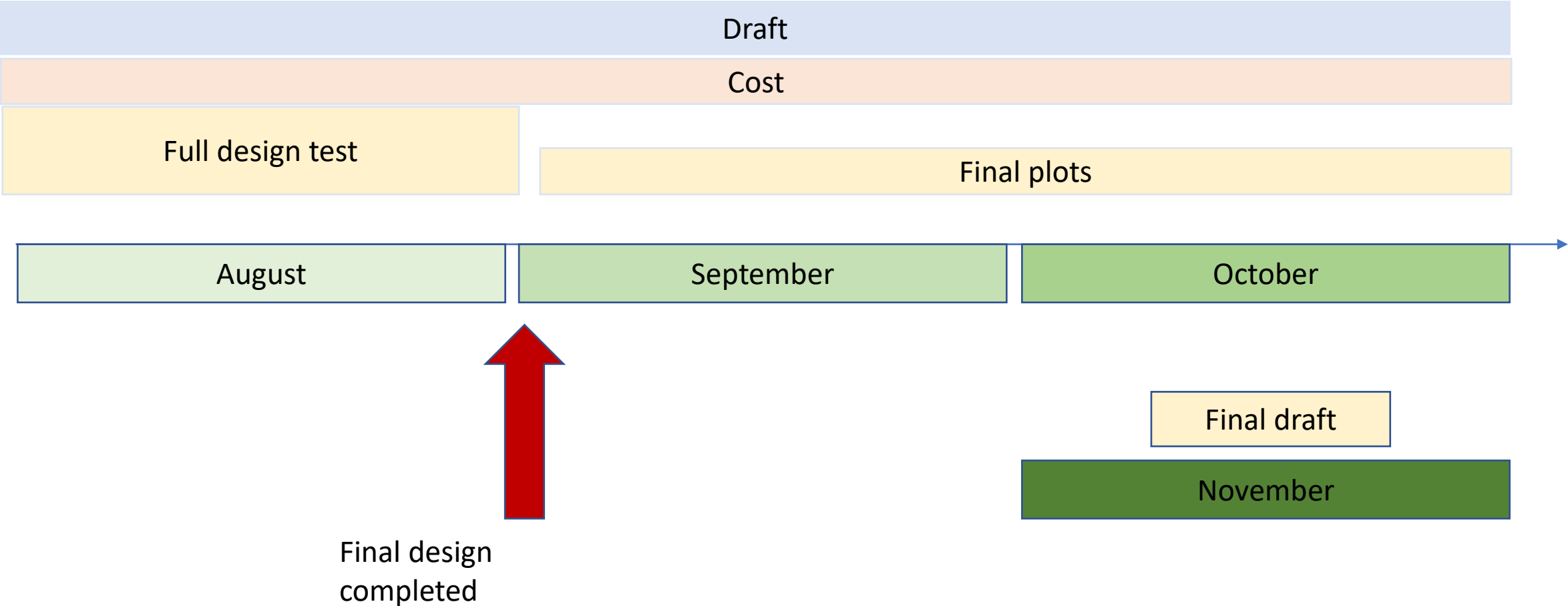
- ❑ Develop common HF reconstruction scheme

- ❑ All simulation needs to take into account crossing angle and other beam effects (should be handled by Software group)

Timeline overview



Timeline overview



Meeting Time and Structure

- Does this (approximate) meeting time work for everyone?
- Meeting times are a moving target, but various working groups are beginning to settle into slots
- May want to shift slightly later to avoid overlap with Tracking
- Frequency: Weekly / Bi-weekly?
- Structure: Topical meetings vs updates?

2-week appointment planner

Calendarpedia
Your source for calendars.

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
9:00		Incl						9:00
10:00				SIDIS				10:00
11:00		Excl	org					11:00
12:00		PID	Tracking		Bi-weekly	all WG		12:00
1:00		far-forward	Jobs/HF					1:00
2:00								2:00
3:00								3:00
4:00								4:00
5:00								5:00

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4:00								4:00
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We Want to Hear from You!

- What do you want to work on?
- Do you have students / post-docs that can contribute?
- Comments / questions / further suggestions on what has been laid out?