

CR-011 Positron Source

- **Two main points being proposed**
 - ▶ Change in the layout (lattice) of the positron beam line (order of some subsystems)
 - ▶ Change in the RF configuration of the the 5GeV booster linac (PBSTR)
- **CRP will treat these independently**

CRP membership:

- Dimitri Delikaris (CERN)
- Nick Walker (DESY, chair)
- Mark Woodley (SLAC)

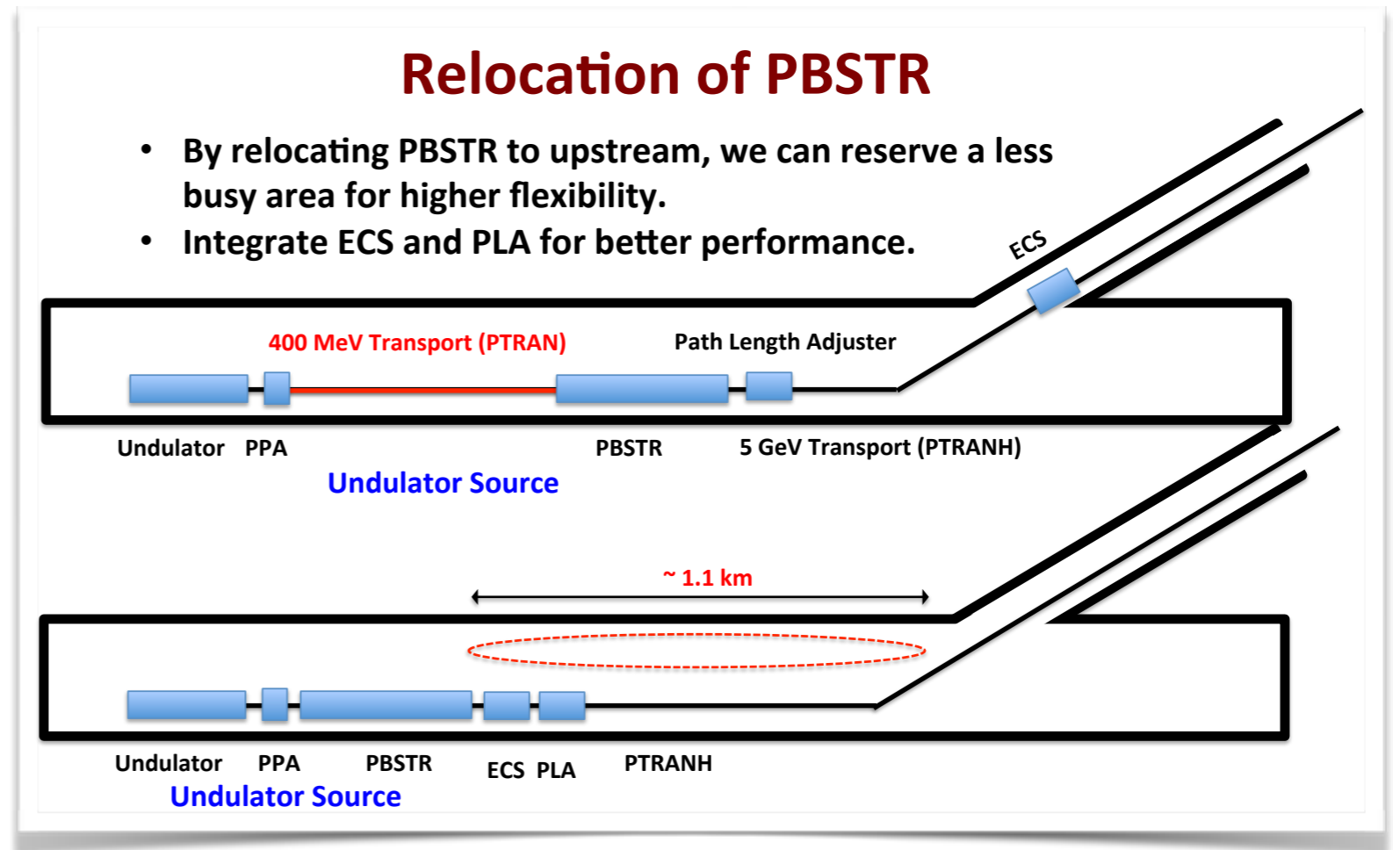
CR-011 CRP history (to date)

- **1st meeting 22.01.2016**
 - ▶ CRP members only (Delikaris, Walker, Woodley)
 - ▶ Produce set of questions for proposers (requests for clarification)

 - **2nd meeting 03.03.2016**
 - ▶ CRP+proposers (Kuriki, Okugi)+CA (List)
 - ▶ Q&A and clarification session
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Status: Layout changes

- Shift PBSTR ~500m upstream
- Move Energy Compressor System (ECS) to main tunnel section.
- Note: Path Length Adjustment chicane (PLA) already implemented as part of CR-0004.



Main rationale (at least for CR):

- Beam dynamics

Main issue:

- Cryogenics for PBSTR
- CFS

Status: Layout changes

- **Formal review hindered by**
 - ▶ Lack of more detail design / complete lattice for layout
 - Lack of tracking studies to support beam dynamics claims
 - ▶ Lack of information concerning cryogenic solution
 - ▶ Lack of any cost impact information
 - **TDR comparison:**
 - ▶ TDR lattice evolved from RDR design (pre SB2009)
 - ▶ Current proposal should be better (probably not worse)
 - ▶ Very vague concept for Central Region cryo will work equally well (or not) for shifted booster (longer He transfer line)
 - **As with all central region, more detailed solutions for CFS/Cryo need to be developed (including costs)**
 - ▶ This layout is probably as good a starting point for this as the original TDR
 - **Tentative recommendation: *adopt* this as conceptual layout for further detailed central region work**
 - ▶ Caveats taken from above
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5 GeV booster reconfiguration

- Proposal seems to present
 - ▶ Reconfiguration of gradients / module kinds
 - ▶ Plus an additional 3 modules for “back-up”

	TDR D*0972665		Proposal?	
	Number	G (MV/m)	Number	G (MV/m)
C4Q4	6	27.4	6	27.0
C8Q2	8	23.2	9	27.0
C8Q1 (Standard Type B)	12	23.8	9	27.0

- Rationale for reconfiguration not clear
 - ▶ Quadrupole strengths?
 - ▶ Klystron power?
 - ▶ Coupler forward power?
 - ▶ **3-module “Back-up” for availability?**
 - ▶ Klystron/modulator availability already high enough. Is additional “RF unit” really required?
 - ▶ **Tentative CRP recommendation**
 - ▶ Too unclear to judge: **reject** as presented.
 - ▶ Should form a separate dedicated CR once booster design (requirements and rationale) have been better developed.

Additional comments

- **On overall CR**
 - ▶ Immature design made review life difficult.
 - ▶ Came down to very superficial change request to shift some components around.
 - ▶ Very little detail available.
 - **On Cryogenics**
 - ▶ Impossible to judge “impact” of change
 - No real solution in TDR either
 - ▶ Important that overall cryo solution be found for central region, which can then be reviewed by experts.
 - **On costs**
 - ▶ Impossible to judge (no cost breakdown submitted beyond simple lattice arguments)
 - CRP agrees these are likely to be “in-the-noise” cost neutral.
 - ▶ Primary cost impact are likely CFS and cryo, neither of which are mature enough to judge.
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