



Making Positrons in the Technical Design Phase Era as seen from the GDE Project Management

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Positron Source Collaboration Meeting
DESY-Zeuthen, 7.04.2008

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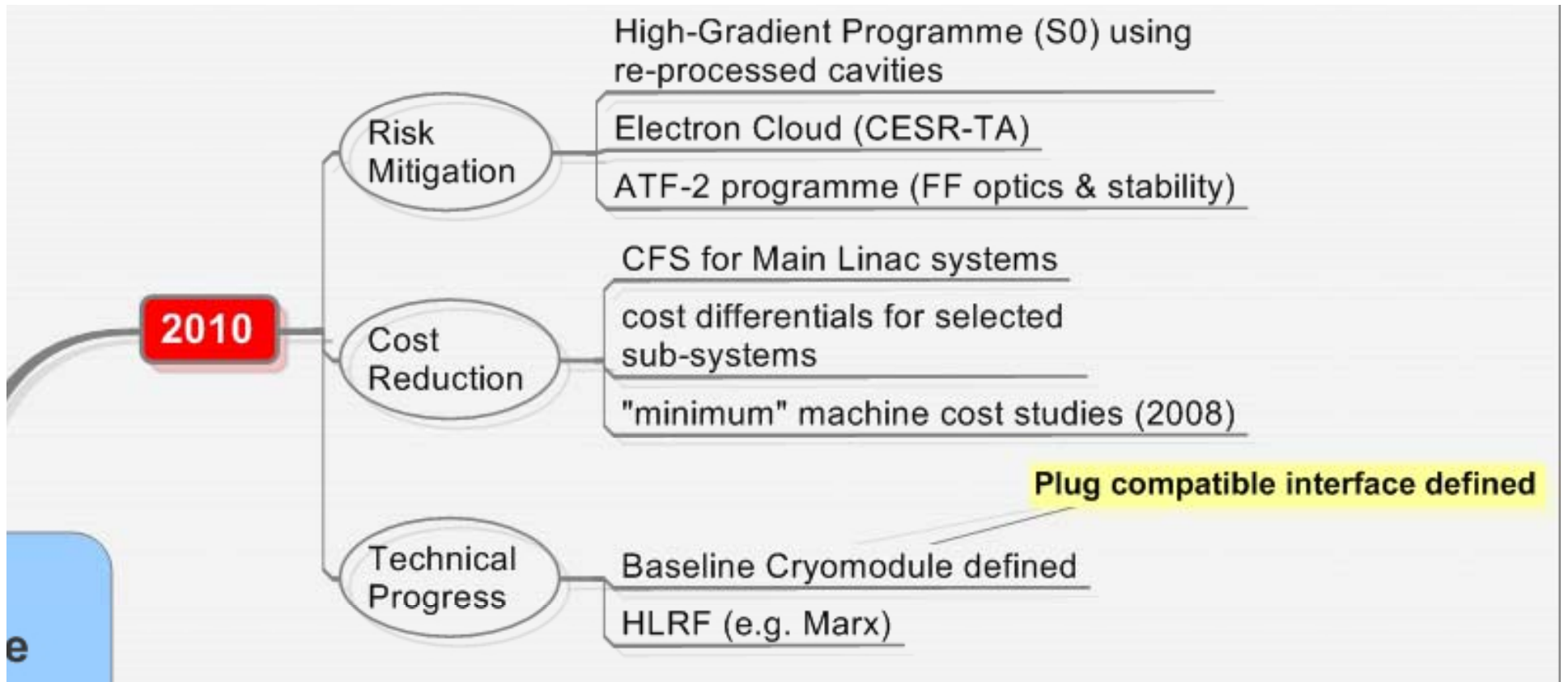
What's in Store

- New road-map overview (TD phase I and II)
- Understanding costs, cost drivers, and reducing the cost
 - **A strategy**
- Cost-effective options for positron production

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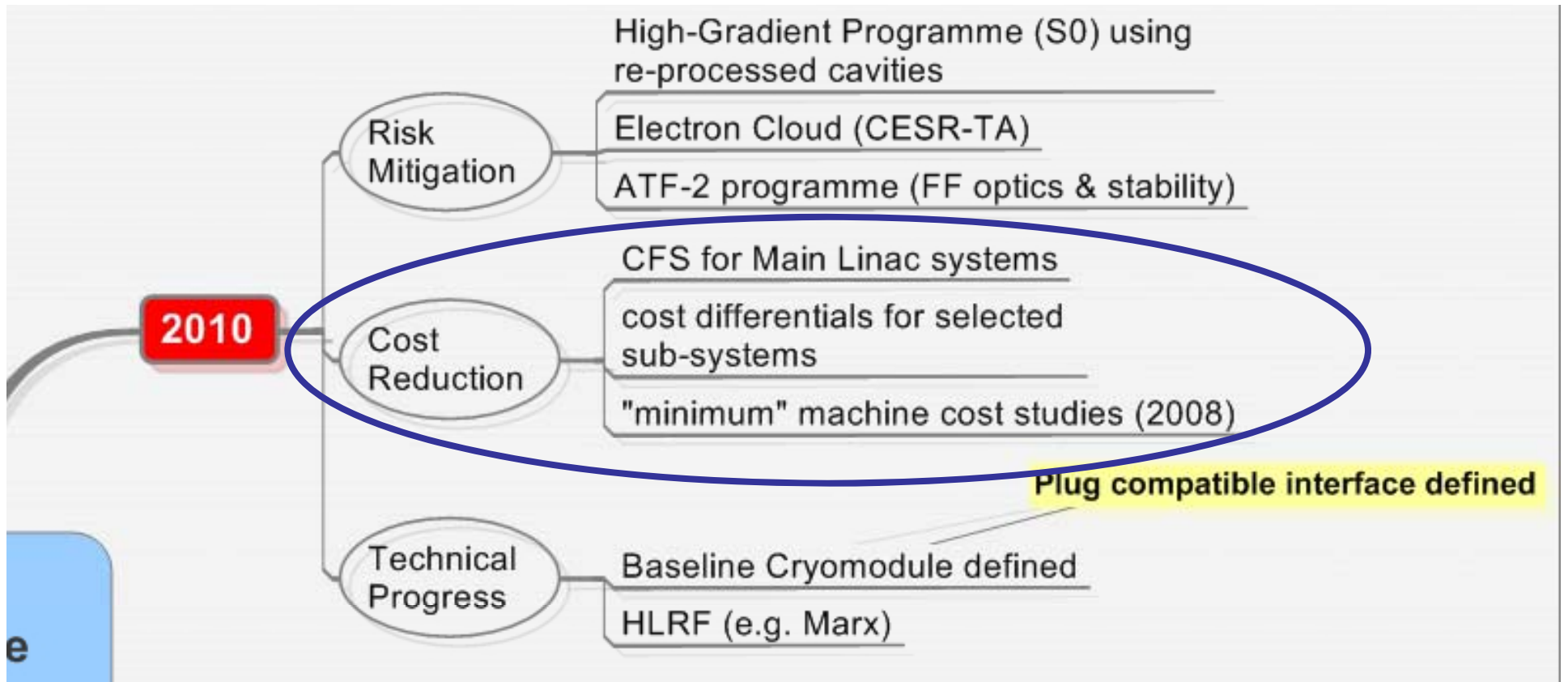
Technical Phase I Roadmap



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Technical Phase I Roadmap

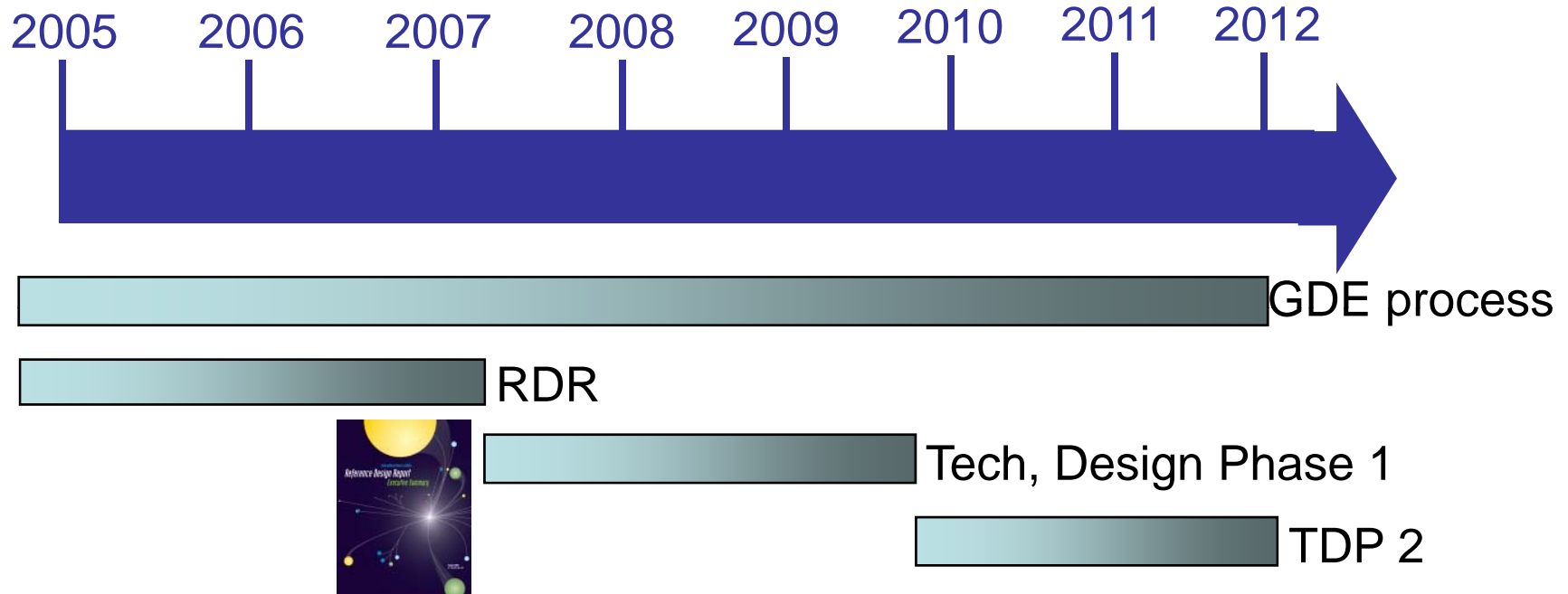


What does this mean?

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ILC New Projected Time Line

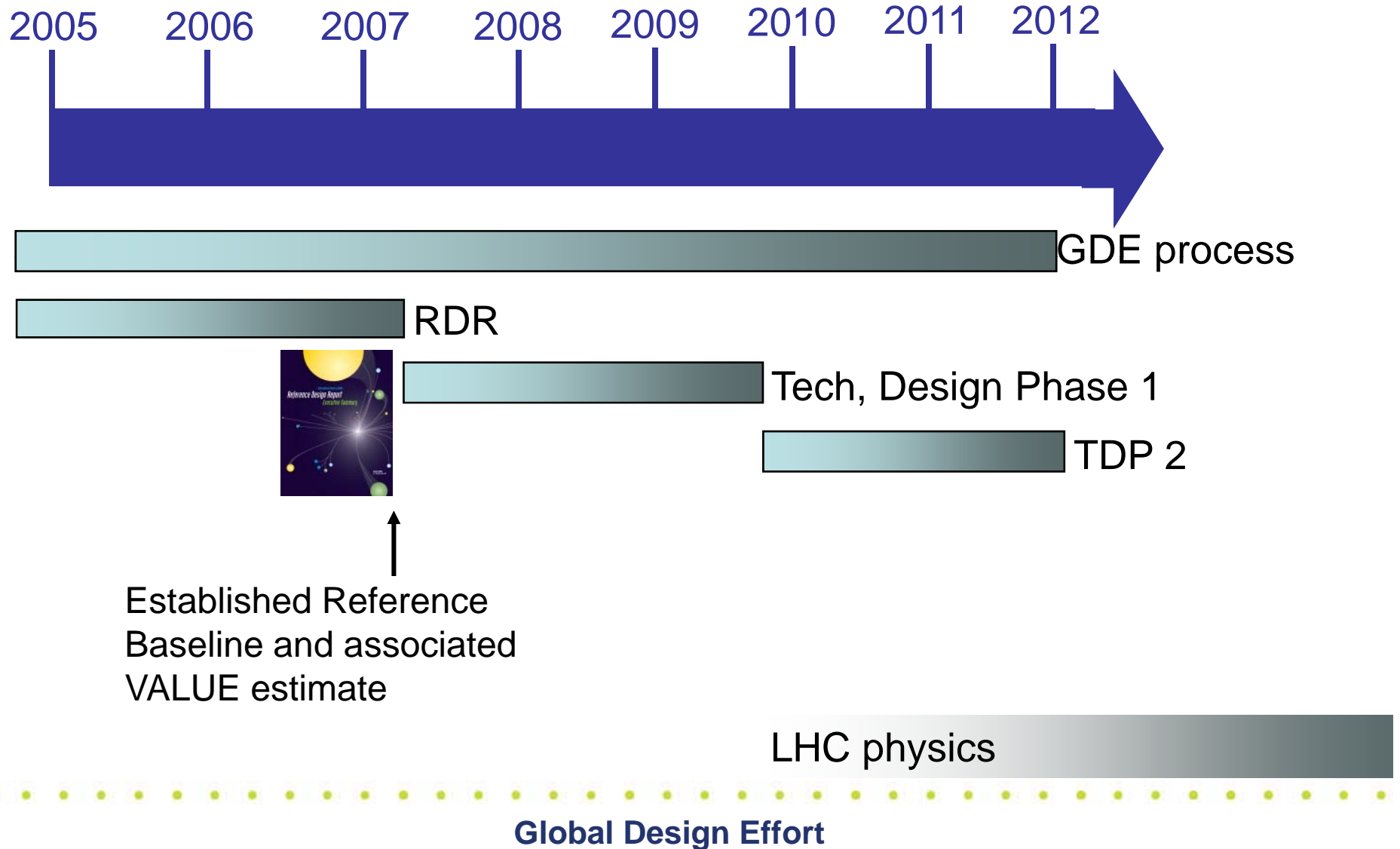


LHC physics

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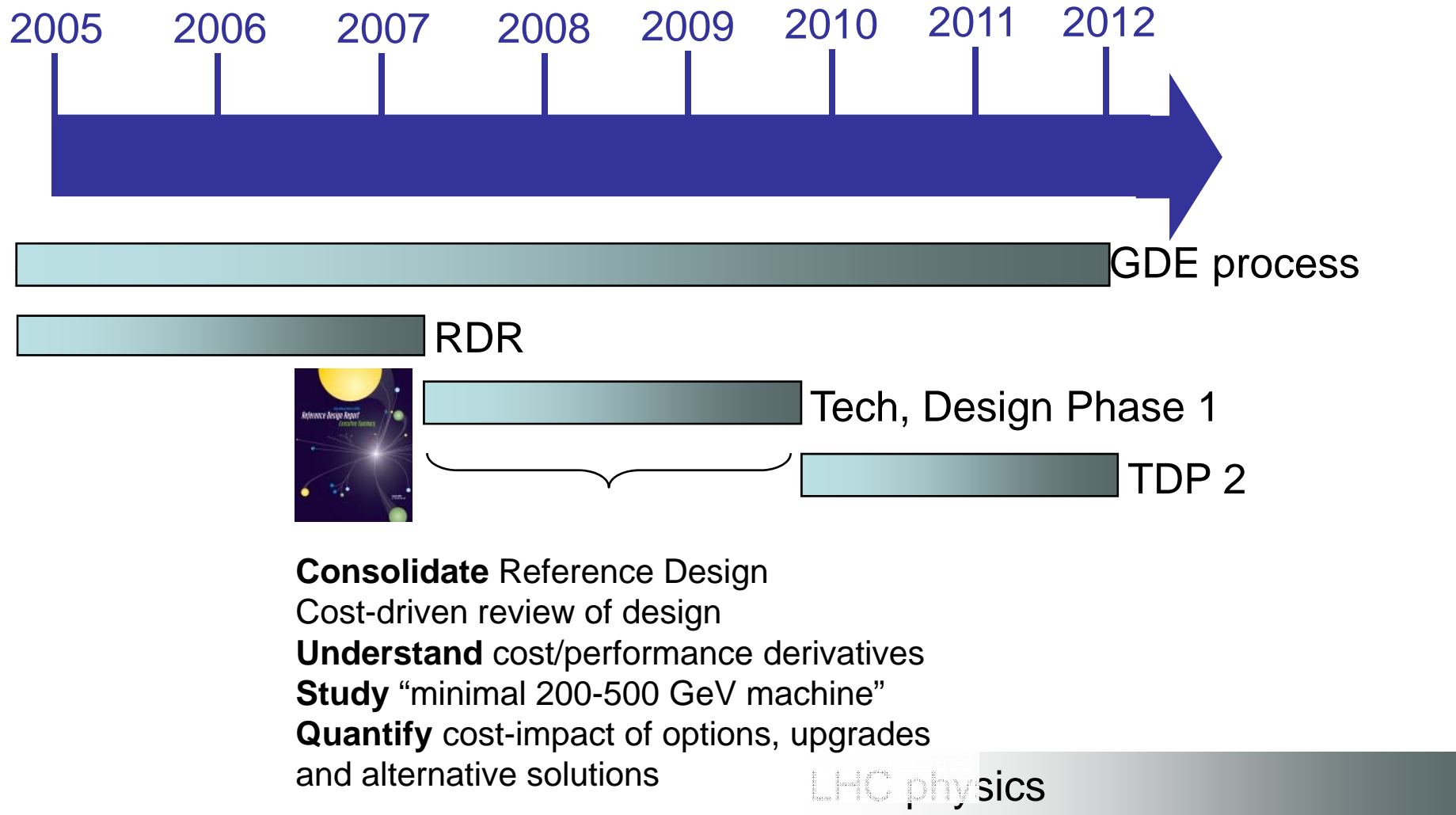


ILC New Projected Time Line





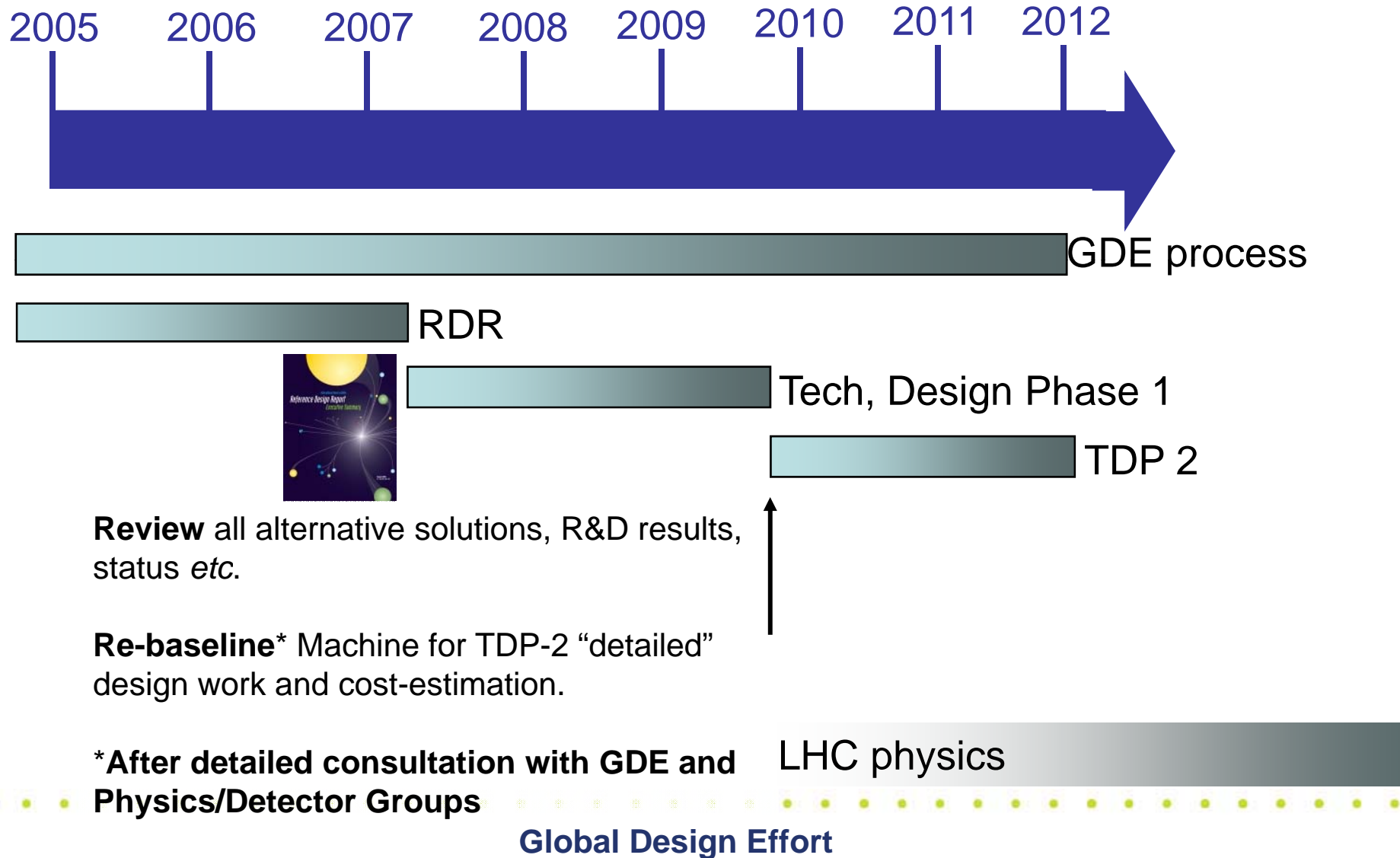
ILC New Projected Time Line



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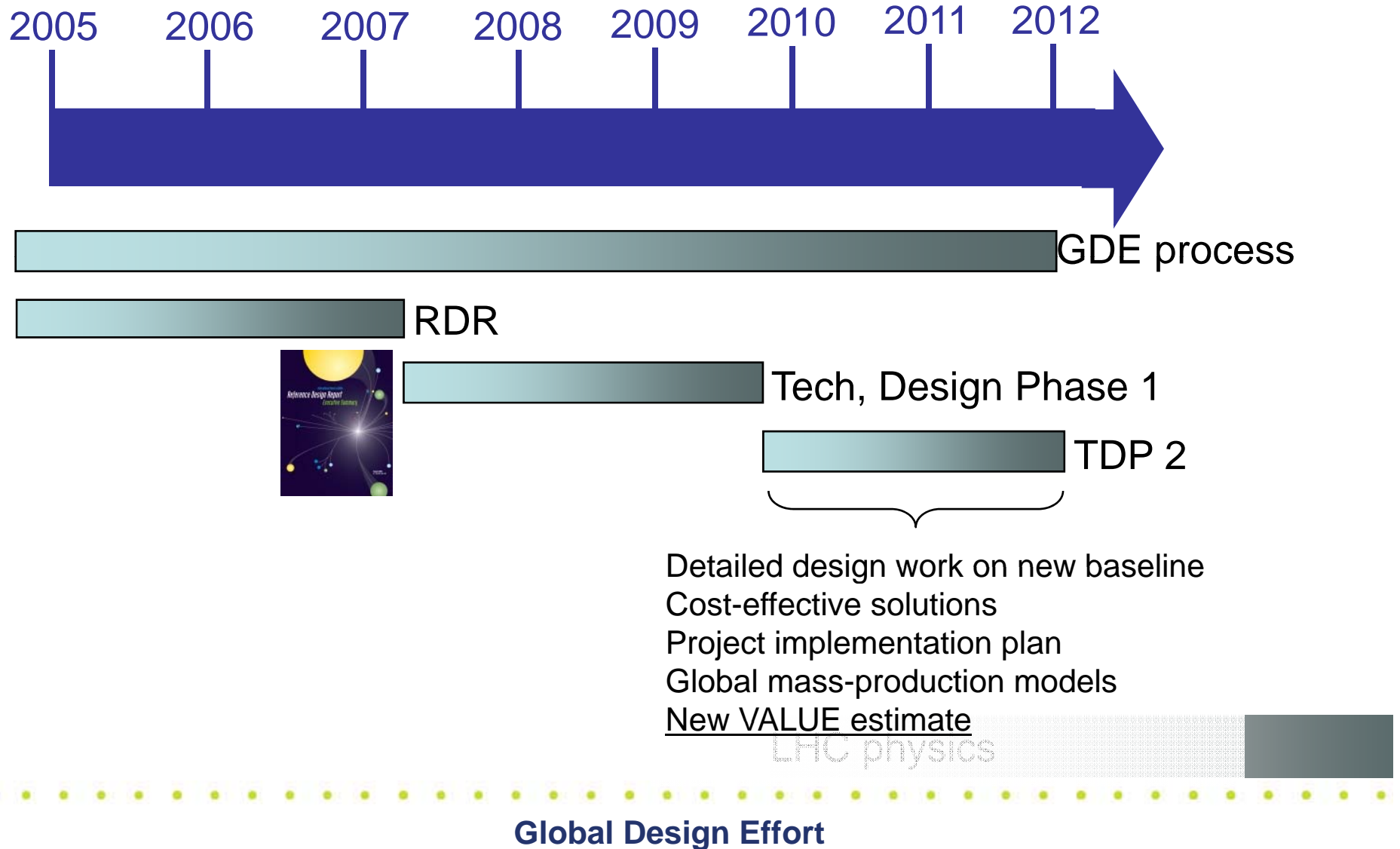


ILC New Projected Time Line



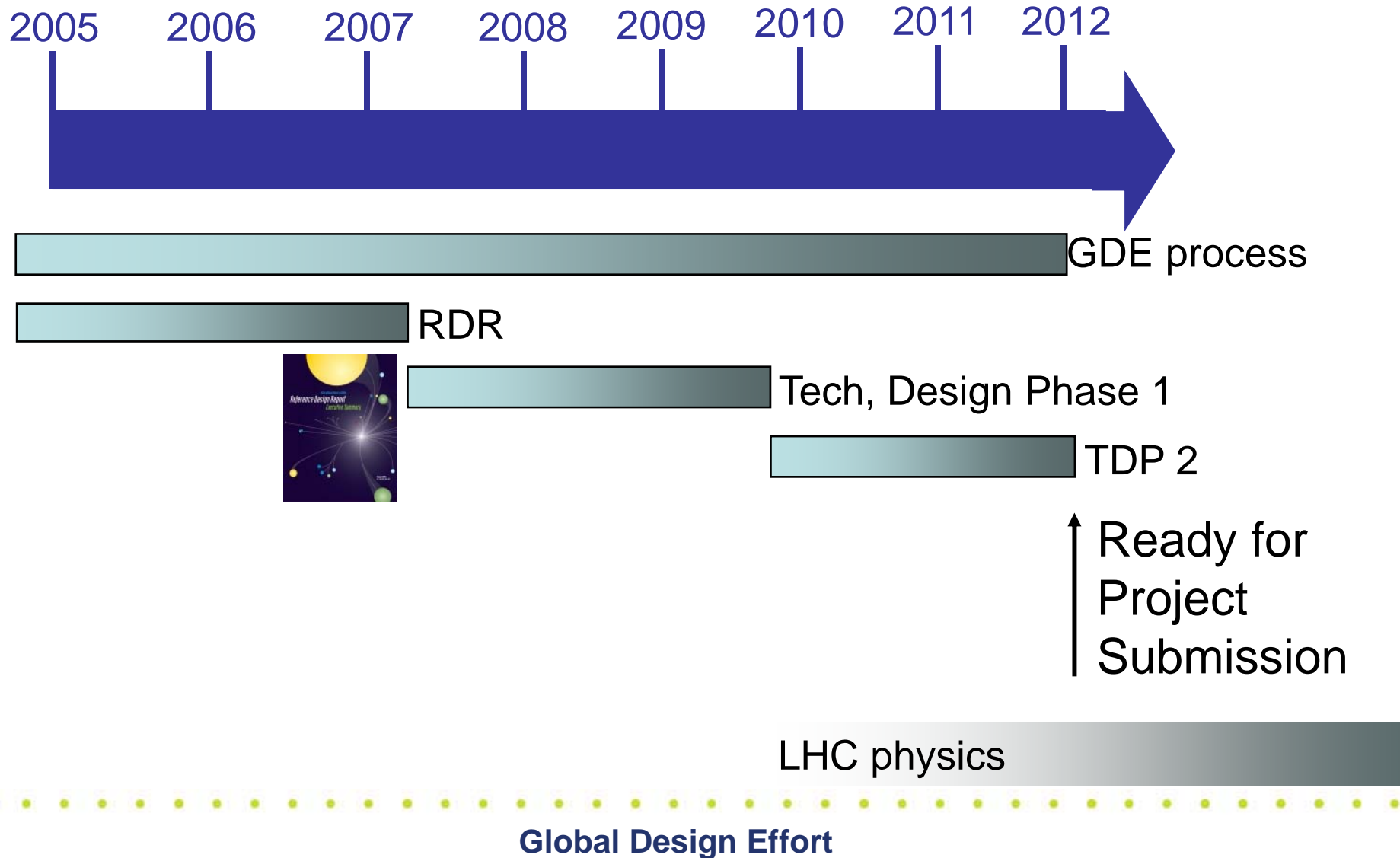


ILC New Projected Time Line





ILC New Projected Time Line





RDR Positron Source Baseline Issues

- Mature concept
- Design used for VALUE estimate conceptual
 - **Requires iteration and review (detail missing)**
 - **Legacy link to VALUE estimate missing**
→ (see cost talk from PHG)
- R&D challenges
 - **yield / Flux concentrator / capture section / target / undulator**
- Overall RDR layout issues!
 - **Timing issues – current layout requires additional 1.5km insertion to maintain self-replicating bunch patterns (~30-50 MILCU)**
 - **Linked operations**
 - **30% polarisation (but not baseline)?**
- Need for an auxiliary source (currently KAS)
- Cost (400 MILCU) !

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Alternatives / Options

- “Conventional” source
 - **Independent operation, timing flexibility very attractive**
 - **Engineering challenges considerable (requires more R&D)**
 - Or we limit the current to some fraction of current ILC
 - **No polarisation**
 - requires additional upgrade (option) path for $\geq 50\%$ pol.
 - **Cost impact? (cheaper?)**
- Compton-based sources
 - **Ring based concept; linac driven**
 - **Independent polarised source**
 - **Technically very immature, requires much R&D**
 - A major challenge for ILC bunch train
- Others??

In all cases (baseline & alternatives), close coordination with DR and Integration is mandatory

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Challenges

- Three-point plan
 - **Document RDR baseline**
 - **Re-establish VALUE traceability**
 - **Identify critical design issues**
- R&D plan (baseline & alternatives) } Important to review R&D
 - **Priorities**
 - **Timescales** } Understand cost/risk leverage
- Evaluation of alternatives
 - **Performance and cost comparisons on equal footing**
- Resources are very short
 - **Tell PMs what you need and we will try and find the resources!**
 - **What we can do will be clearly limited**
 - the need for strong prioritisation
- We look forward to interesting discussions at this workshop

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