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• Status in June 98:
  – Completed Baseline Cost Model based on PEP II
  – Quad switching arc-protected modular power supplies of 3-5 kV @ 50 mA max. per channel
  – High voltage long-haul cables with multi-drops for smaller pumps (up to 10 per HVPS channel)
  – Sector model completed based on then-current model of distributed pumps for:
    • Linac structure: 18-500 l/s pumps/sector
    • DLDS: 75 l/s pumps
    • Klystron: 2-25 l/s pumps
  – Catalog sheets and Sector Cost Model completed
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• Status in November 98:
  – Cost Model re-done for new pump configuration:
    • Alcove: 108 25 l/s pumps
    • Delay Lines: 144 - 75 l/s pumps
    • Manifolds: 9 - 75 l/s pumps
    • Beamline: 108 - 25 l/s pumps
    • Total/Sector: 369 Individual Pumps
    • Total/Main Linac: 16,974 Individual Pumps
  – 500 l/s turbo pump at each of 9 Alcove penetrations
  – Requirements for Injection & Beam Delivery still in development
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• R&D Model:
  – 60% of Baseline cost is in HV long haul cable plant cables & connectors
  – Pump current necessary to pump down from 10E-4 Torr is 1-2 mA at 3-5 kV
  – With 25-75 l/s pumps, can utilize small individual supplies near the pumps if they can:
    • A. Withstand moderate irradiation (e.g. 8R/hr for 10 Yr)
    • B. Be made more cheaply than present system
    • C. Be made very reliable
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• R&D Model:
  – *Advantage:* Current monitoring built into each pump supply module would give much better vacuum readout than possible with PEP system of ganged pumps on a single channel
  – *Disadvantage:* Need a radiation hard design that can withstand an integrated dose of ~1 MR over 10 or more years
  – An SBIR has been awarded for study of this architecture
  – SLAC will contribute a small amount of manpower
  – Cost goal: Reduction of at least 2X from current estimate of ~ $1M per Sector
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• R&D Plan:
  – Analyze reliability of both PEP and proposed NLC models
  – Support SBIR analysis and modeling
  – Develop custom chip or chip set block design and specs to support rad hard HV module
  – Perform preliminary chip performance, layout and cost assessment