



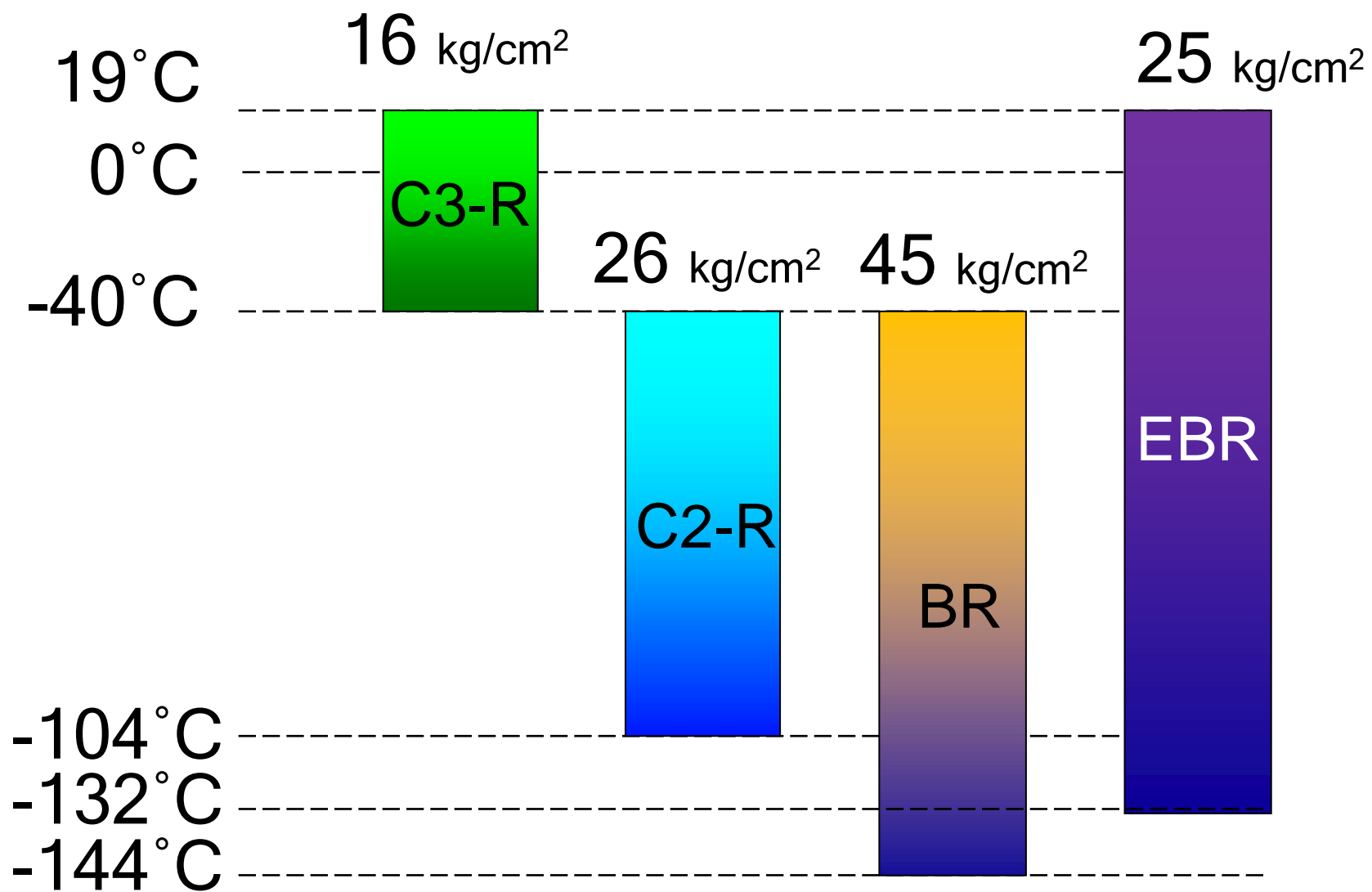
Enhance Binary Refrigeration System

Refrigeration system evolution

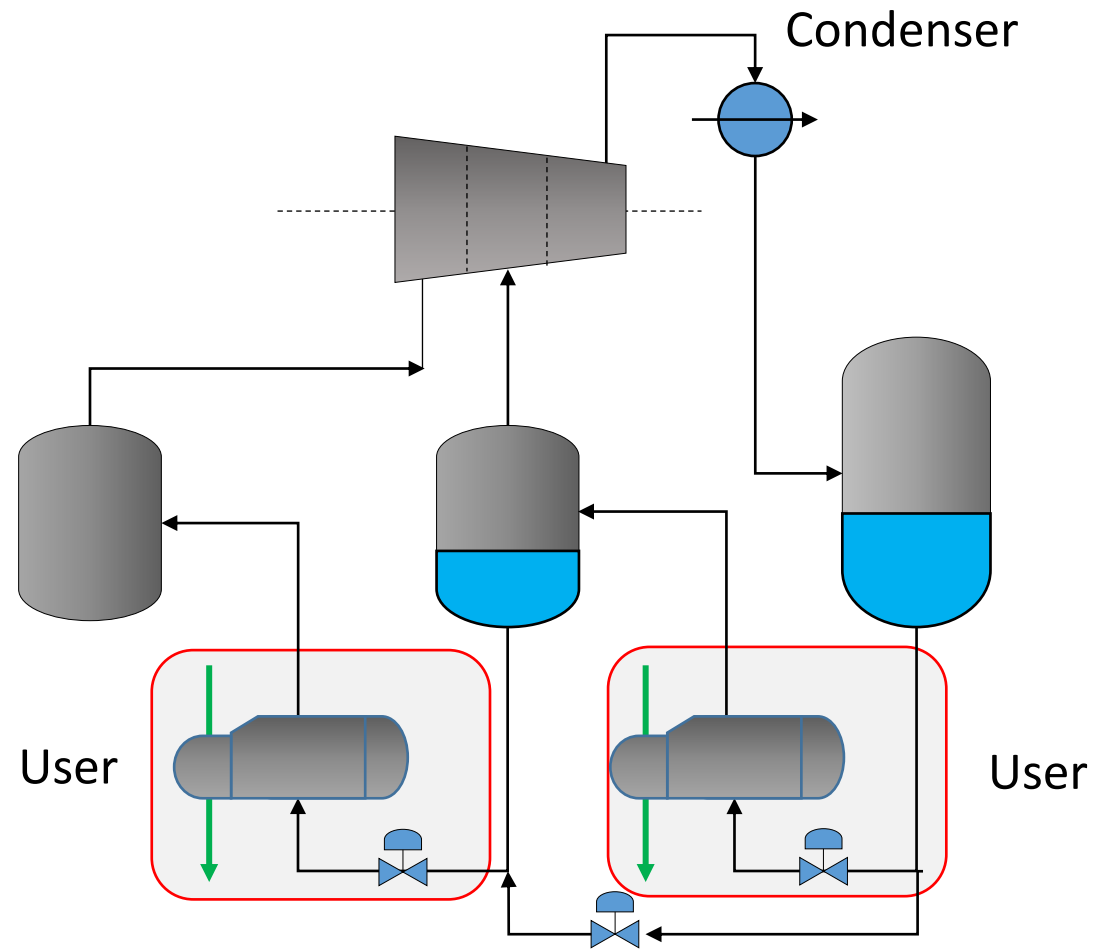
- Propylene Refrig. + Ethylene Refrig. + Turbo Expander or Methane Refrig

- Propylene Refrig. + Binary Refrig.

- EBR + H₂, Methane boost up



Ordinary Refrigeration system

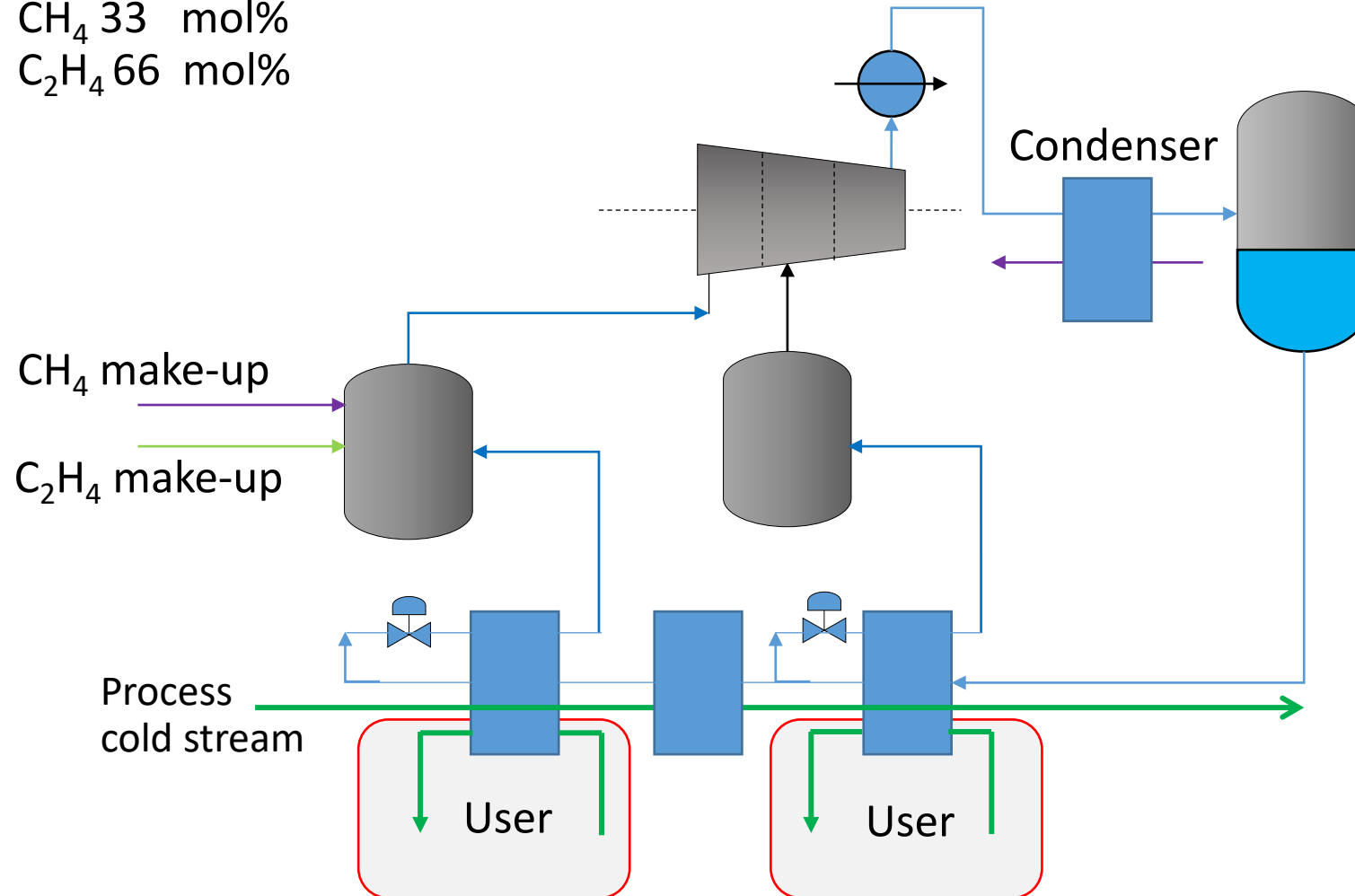


Binary Refrigeration system

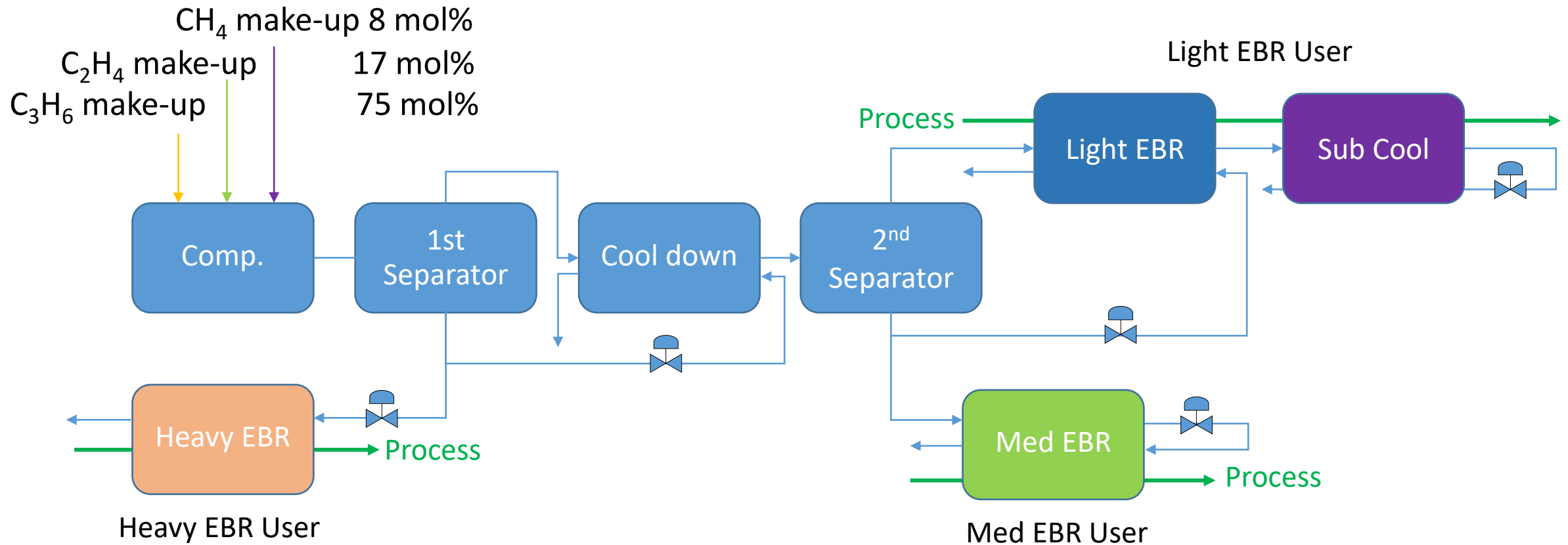
2 Component
refrigerant

CH_4 33 mol%

C_2H_4 66 mol%



EBR Refrigeration Concept



EBR Turbine and Compressor

- Condensing Extraction Steam Turbine drive (8EL-9)
- SH 39 kg/cm², 155 t/h, Extraction 45 t/h, CS 110 t/h
- Operating speed 2,998 - 4,497 rpm

- 3 Stage Side Load Compressor (11H-6C)
- 1st Suction 0.89 kg/cm² -37°C
- 2nd Suction 2.81 kg/cm² 4°C
- 2nd Discharge 12.86 kg/cm² 70°C
- 3rd Suction 12.58 kg/cm² 34°C
- 3rd Discharge 25.43 kg/cm² 77°C

EBR User

Heavy EBR

- E-1206, E-1207
- E-1308, E-1309, E-1322
- E-1404
- E-1810

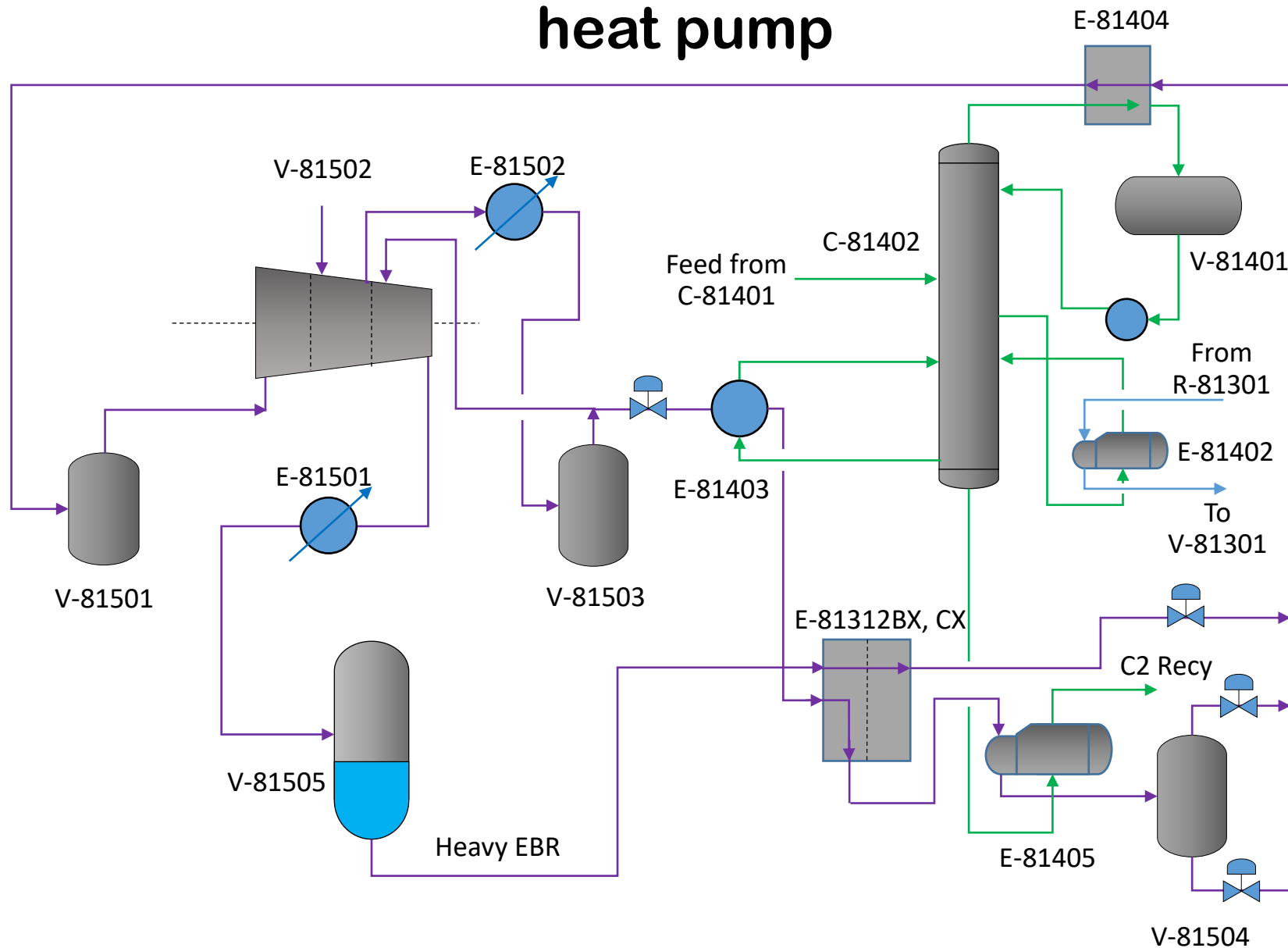
Medium EBR

- E-81312AX, E-81312BX, E-81312CX (Condense Med EBR and Partial condense Light EBR)

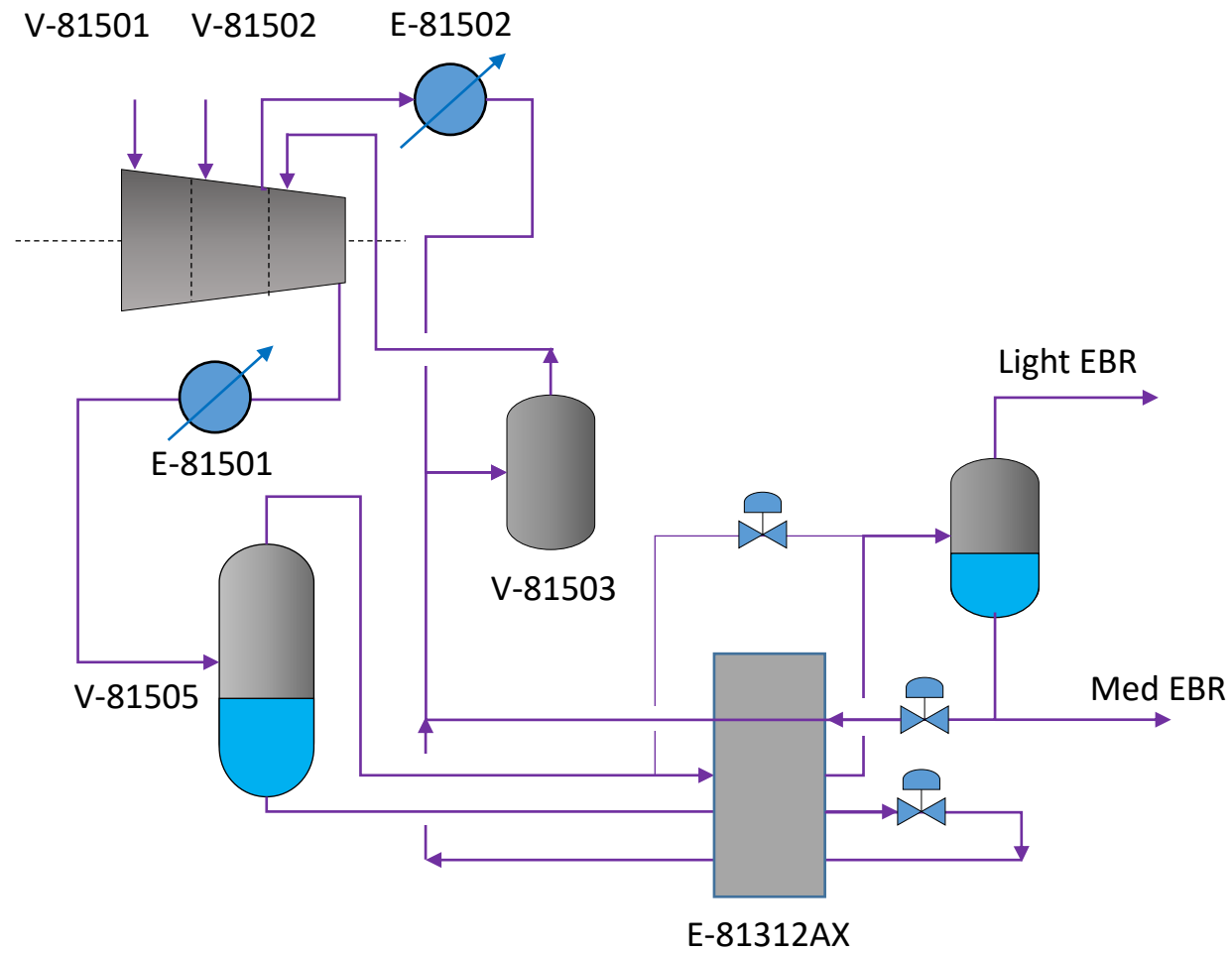
Light EBR

- E-81312AX, E-81312BX, E-81312CX
- E-81314, E-81315, E-81316 (HMC, Feed Separator, Demethanizer)

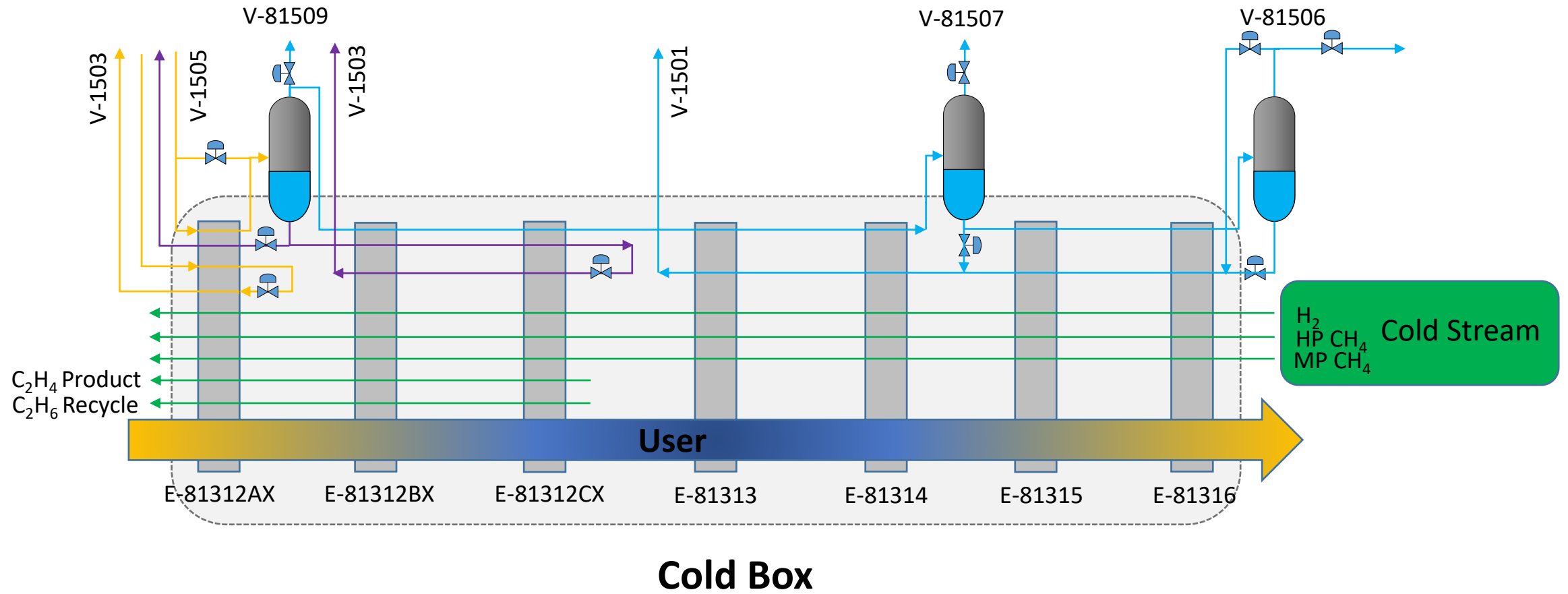
Heavy EBR heat pump



Medium EBR



Light EBR



Thank You