Current sensing techniques are used in feedback for dc-dc converters photovoltaic (PV) systems. Different sensing techniques are investigated for their cost and power consumption. This is particularly important for smaller power module converters to increase:

- Affordability
- Energy efficiency

**Question:** Which current sensing technique minimizes power loss and cost, while meeting control requirements for specific size PV module?

**Technique:** Hall effect sensor is a transducer that produces a voltage in response to a magnetic field. A current $I$ flows through a thin sheet of conductive material that is penetrated by a magnetic flux density $B$, and voltage is generated perpendicular to both current and field [1] .

**Advantage:**
- Isolation between current path and logic
- Low power consumption

**Disadvantage:**
- Significant thermal drift
- Need additional circuitry to compensate the voltage offset
- Relatively high cost

**Types:**
- open-loop
- closed-loop
- active current probes.

**Power Consumption:**

The supply voltage ranges from 2 V to 6 V and the supply current ranges from 8 mA - 10 mA, which results in low power consumption at the mW scale.

**Cost:**

Hall Effect sensor cost is more expensive.

- Chip: $4 to $7
- Through-hole: $20 to $50 [3]

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**Selected References**

