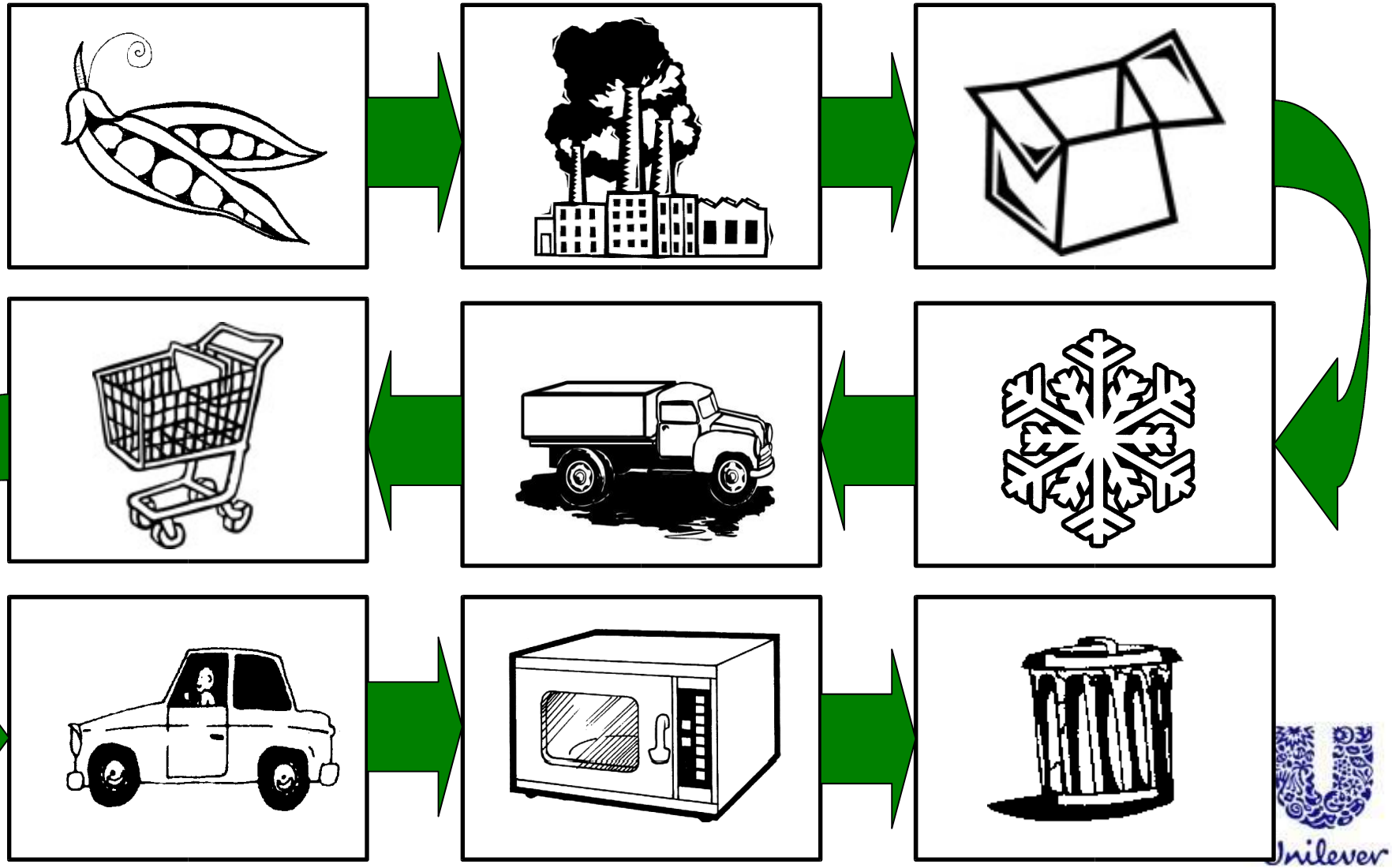
Energy Consumption Across the Frozen Pea Supply Chain

Peter Shonfield

Safety & Environmental Assurance Centre

Unilever

The Pea Life Cycle



Factors affecting energy consumption

- Production—energy consumption is determined by fertiliser usage, farm and factory processes
- Cold storage:
  - pea harvesting season extends from late-June till mid-August
  - frozen peas are available all year round, so pea storage time varies from a few weeks to one year
- Energy consumption for other parts of the life cycle can also vary significantly depending on:
  - transportation distances
  - freezer type and efficiency (commercial and domestic)
  - consumer cooking habits

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Scenarios

- Variations between low- and high-energy scenarios arise from:
  - cold storage time: 1 month to 12 months
  - distribution distances: UK (250 km) and Italy (1400 km)
  - retail storage: chest freezers vs. upright cabinet freezers
  - consumer storage: new high efficiency freezers vs. older lower efficiency designs
  - cooking: gas hob vs. microwave
- Production processes and consumer transport were considered to be the same for both scenarios

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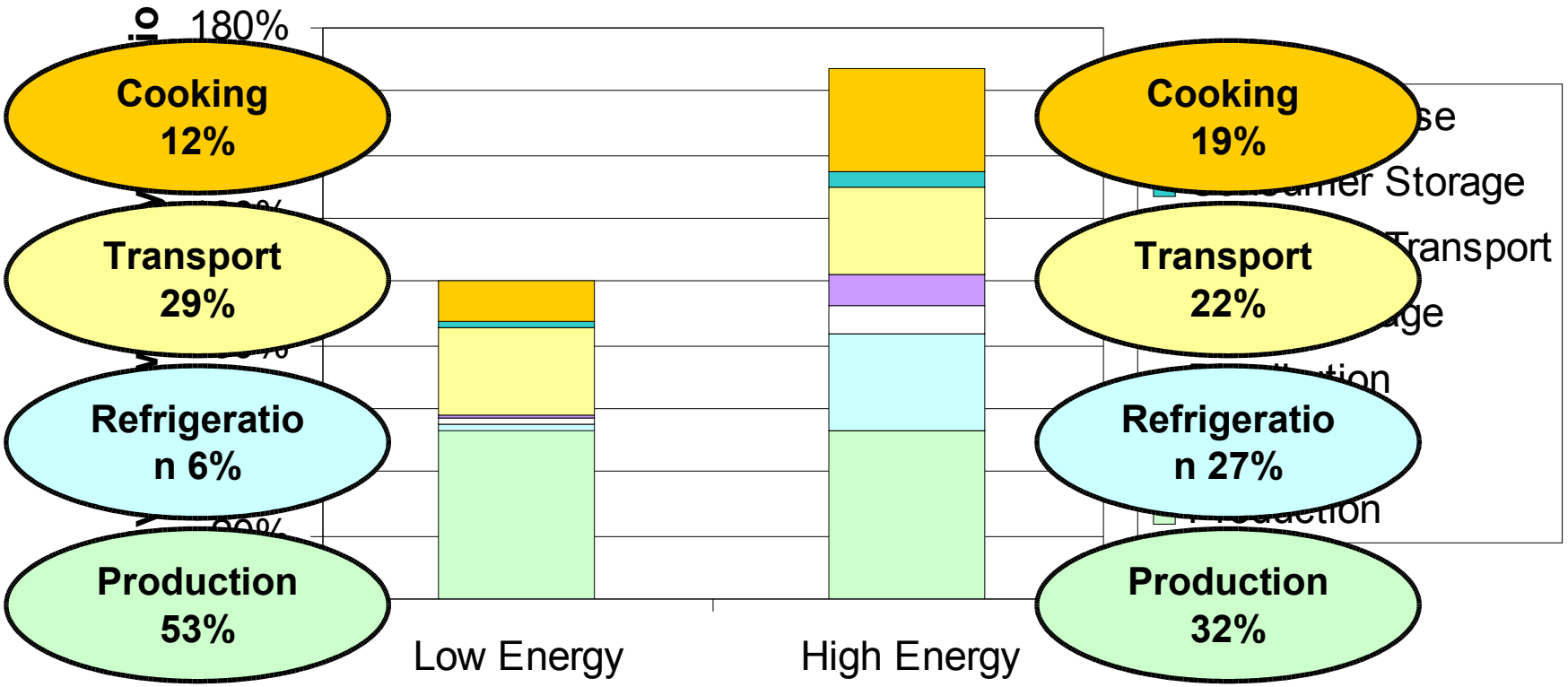
Life Cycle Energy Profile



Issues to consider

- Duration and efficiency of refrigeration is a key factor:
  - Crops with a longer harvesting season will require less long-term cold storage to ensure year-round availability
  - Greenhouse gas emissions: Unilever uses ammonia refrigerant. Elsewhere in the supply chain there may be issues with HCFC/HFC refrigerants
- Distribution: poor data available on chilled/frozen distribution, but it is significantly more energy intensive than conventional non-chilled distribution (~extra 1-3 litres diesel/lorry/hour)
- Consumer plays an important role in their choice of shopping and cooking habits

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