PUSCH Australia

Solar Heating and Cooling in Australia –
An industry roadmap
PUSCH industry roadmap – Methodology

- Desk Research
- Expert Interviews – Australia and globally
- Scenario Analysis
  - Business-as-usual
  - Recommended Policy
  - Best case
  - Worst case
PUSCH industry roadmap –
Key questions

• How can SHC be used in the built environment to augment, replace or improve existing conventional heating and cooling technology?

• Which market segments are currently or in future especially suited for use of SHC and what can the industry do to leverage SHC potential in these market segments?

• What do manufacturers, distribution, trade, research & development and government need to do to maximise any and all benefits for the next 15 years?
PUSCH industry roadmap – outline

- SHC Technologies – solar thermal and PV driven or assisted
  Overview of technologies in existence or in development including economic comparison
- Built Environment Applications
  Current and planned applications by building type
- Market requirements and conditions
  Analyse current state of the SHC industry in Australia and worldwide; Define current market size and needs
- Analysis / possible market benefits
  Research opportunities and risks in future development and expansion of SHC technology use in built environment; Define achievable national targets for SHC technology use in built environment
- Recommendations
  Provide recommendations for support measures to achieve such targets (regulatory, financial and others)
- Impact Analysis
  Business-as-usual best case / worst case; Recommended Policy best case / worst case
PUSCH industry roadmap – SHC technologies

Solar Thermal Heating and Cooling Systems:
- Technologies – Sorption and Desiccant (Absorption / Adsorption; Solid / Liquid Desiccant)
- Low temp (60 - 120° C), medium temp (120 - 250° C)
- Water and other working fluids
- Thermal Energy Storage

Solar PV assisted Cooling Systems:
- Grid-connected / Off-grid / Grid-backup / Direct-driven DC systems
- Electrical and/or thermal Storage
PUSCH industry roadmap – Built Environment applications

- High and medium density residential
- Low density residential
- Office Buildings
- Health Care (Clinics, Hospitals)
- Retail
- Hotels
- Schools
- Tertiary Education
- Public Buildings
PUSCH industry roadmap – SHC economic overview

- Cost comparison of solar heating and cooling systems by technology
  - Current cost; outlook on cost development; CapEx/OpEx distribution; Payback/ROI
- Efficiency impact / Suitability by climate region
- Business Models
  - Purchase; Lease; ESCo / Solar Contracting; other
- Payback / ROI
PUSCH industry roadmap – SHC market overview

• Global / Europe / Asia market overview
• Australia market detail:
  • Market Size / Cooling and Heating Demand by building type and climate region
  • Existing Market review
  • Key Players
  • Market developments
  • Key Regulatory / Incentive Programs
  • Market Barriers
PUSCH industry roadmap – Analysis and possible market benefits

- Lowered building energy use / cost
- Viable national short-term and long-term targets
- National Energy / GHG impact
- Economic impact – cost savings / expanded workforce / export opportunities
- New market opportunities – new products / new services / export markets
PUSCH industry roadmap – Recommendations

- Roadmap vision
- Regulatory market support measures
- Financial market stimulation / support incentives
- Joint R&D with overseas institutions / companies
- Pilot Projects
- Training (trade / consultant / architect)
- Education (consumer / market / developer / property manager)
PUSCH industry roadmap – Impact Analysis

- Recommended policy outcome
  - Worst case
  - Best case

- Business-as-usual outcome
  - Worst case
  - Best case
Thank you!
PUSCH industry roadmap – Schedule

- Desk Research
- Expert Interviews
- Analysis
- Recommendations
- Impact Analysis