



PUSCH Australia

Solar Heating and Cooling in Australia –
An industry roadmap

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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!

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PUSCH industry roadmap – Schedule

