

To Whom It May Concern

Graz, 2019-02-22

**SOLID** is a family-owned and family-run Austrian solar engineering company specializing in all aspects of large-scale solar thermal energy plants. Since 1992, SOLID has been planning, building, delivering, assembling and operating large-scale solar plants around the world, providing hot water, room heating, industrial process heat and district heating for towns and villages. SOLID also designs and builds solar chilled water plants, including the largest commercial solar cooling projects currently in operating. The project sizes today are typically in a range from 300 kW<sub>thermal</sub> up to several MW<sub>thermal</sub> nominal capacity. With its unmatched experience in design and operation of large-scale solar plants, SOLID is both a pioneer and one of the world's leading companies in the solar industry.

**BigSolar** - project reaches hundreds of thousands of people

BigSolar disrupts the district heating market. It combines a newly developed technical system solution with an innovative business model based on in house our own proven technologies.

**Challenge:** At present, district heating networks use more than 80% of fossil fuels such as coal and natural gas and are therefore also heavily dependent on fluctuating fuel prices. District heating companies typically have limited resources for development and implementation of new innovative technologies and tend to outsource the related activities and risk. The industry needs a reliable, price stable and green heat source from a large-scale perspective.

**Solution:** Solar heat has already started to supply district heating but mostly was limited to supply summer loads. Low solar radiation in winter has been restricting the solar potential. **BigSolar is the solution** to overcome this restriction. The solution is achieved by a combination of scaling up solar thermal collectors, large heat storages (shifting solar heat from summer to winter) and thermally driven heat pumps. All relevant system parts underwent a significant development within the last years, today offering a competitive heat price and enormous potential.

**Objectives:** The transition of heat supply to a renewable and regional solution would have huge impact, not only on carbon emissions from energy production, but also on existing dependencies on fossil fuel imports and their prices. That transition is not an easy task for the heating sector.

**Innovation:** Our innovation, the BigSolar system, meets exactly the major challenge of any district heating system: it supplies renewable and reliable solar energy at an affordable price, available, when it is needed. The technologies used in BigSolar are solar thermal collectors, seasonal heat storage and a thermal heat pump.

**Target:** District heating is considered to have high potential to integrate high renewable shares into its energy supply portfolio from both the business and the social impact point of view. Each project has an enormous impact on decarbonization: with one big project hundreds of thousands of people can be supplied with renewable heat with the economy of scale significantly lowering the achievable price. District heating companies are identified as main target customer. A district heating company's job is to deliver heat to their customers. These companies distribute heat at the temperatures and energy amounts which can be provided and supplied by SOLID BigSolar

District heating companies urgently need solutions for integrating new energy technologies. Reduce CO<sub>2</sub>-emissions for a gradual transition to a renewable share in district heating grids. Resilience of energy and other critical infrastructure has become of major interest to district heating companies, as well as for the European Union. District heating companies are strong local player with intensive local sourcing, adding significant local added value. Last, but not least, district heating companies do not have the expertise and resources to design new energy technology opportunities like SOLID BigSolar.

BigSolar contributes to overcoming the European Union's challenges and advancing its policies, which are based on the Sustainable Development Goals (SDGs) of the United Nations.



BigSolar – a color code of green means BigSolar's contribution is very strong and direct; orange means its contribution is indirect and red means that BigSolar can make no contribution

SOLID is an integral constituent and an initiator of numerous research and development projects, ranging from completed International Energy Agency tasks to other ongoing R+D initiatives – our know-how is in demand!

### Honours

- 2016: Intersolar Award for Outstanding Solar Thermal systems
- 2016: Best small/medium Enterprise and Startup in Export
- 2016: Esco Award 2<sup>nd</sup> place, Germany
- 2014: National Energy Globe Award Jamaica
- 2012: US-Biz Aus biz award, category Trendsetter
- 2009: Export prize
- 2008: 10 years sign of environment
- 2007: Nomination energy globe styria award
- 2006: ÖGut prize of environment
- 2006: Asian Power Award
- 2006: Econovius
- And many more

With best regards,  
S.O.L.I.D. Ges.m.b.H.