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Preface

It is generally agreed that biomass will contribute essentially to a future sustainable energy system worldwide. Furthermore, biomass gasification will be a key technology for such an energy system. By conversion of solid biomass into a producer gas heat and electricity can be generated efficiently. In former years, combined heat and power (CHP) production was the main focus of research, development and deployment and was also main topic of several conferences. Nowadays, CHP on gasification can be considered as commercial available technology although the steadily growing number of plants in operation is still low.

However, there are several plants which steadily contribute to the mass of experience and have reached up to more than 70.000 hours of successful plant operation. In recent years things have changed. In all steps of the process chain e.g. gas production, gas cleaning and gas utilization enormous progress have been achieved. Furthermore, besides heat and power generation the production synthetic biofuels gain more and more interest in research as well as for industrial applications. *Polygeneration* is now the key word for future efficient and sustainable biomass utilization. *Polygeneration* in this sense means the production of at least three different products e.g. heat, electricity and biofuels. *Polygeneration* based on thermochemical biomass conversion can also be characterized as one type of a biorefinery, a so-called syngas platform based biorefinery.

As we started the *International Conference on Polygeneration Strategies Series* in 2009 we aimed on two things. First we wanted to present and review the current state-of-the-art of syngas production, syngas cleaning and syngas utilization. Life cycle analysis, simulation and techno economic studies have been further integrated parts of the conference until the beginning. Numerous abstracts and papers to these topics from all parts of the world have been presented to the scientific committee over the last three years which showed the necessity and importance of this conference from the start. Secondly we wanted to offer a platform for exchange and scientific networking and we directly aimed on young scientists as well as the experienced experts in these fields.

We hope that we could fulfill your expectations in this event, in an organizational and scientific perspective by establishing a peer reviewing process for the contributions this year.

Let us take the opportunity to thank our team at the "Future Energy Platform" at Vienna University of Technology who helped us realizing this event.

Concluding it is a pleasure and honor for me to, beside of the explained scientific focus of this conference, grant for true Austrian hospitality in these three days, which I hope you will enjoy during the International Conference on Polygeneration Strategies 11. We hope that you will remember nice and interesting experiences when taking this book to hand in future.

Vienna, August 2011

Michael Fuchs, Hermann Hofbauer

7. References

[1] Jankes, G., Milovanovic, N., „Biomass Gasification in Small-Scale units for the use in Agriculture and Forestry in Serbia" Thermal Science, J. Sci., 2001, Vol. 5, No. 2, pp., 49–57

[2] Bogunovic, A., Bogdanov, A., Wolz, A., Reinsberg, K., Buchenrieder, G., Analysis of Renewable energy and its impact on rural development in Serbia, 2009

[3] Zych, D., The viability of corn cobs as a bioenergy feedstock, 2008

[4] Bridgwater, A.V., The Technical and Economic Feasibility of Biomass Gasification for Power Generation, Fuel, 74 (1995), 5, pp. 631–653

[5] Schaub, K., Gemperle, H., Pyroforce Power from Wood System – Commercia Breaktrough Reached, ThermalNET Newsletter, 6 (2008), pp.12-14

[6] Raveendran, K., Ganesh, A., Khilar, K.,Influence of Mineral Matter on Biomass Pyrolysis Characteristic, Fuel, 74 (1995), 12, pp. 1812–1822

[7] Raveendran, K., Ganesh, A., Khilar, K., Pyrolysis Characteristic of Biomass and Biomass Components, Fuel, 75 (1996), 8, pp. 987–998

[8] Faaij, A., R.van Ree, Waldheim, L., Olsson, E., Oudhuis, A., A. van Wijk, Daey-Ouwens, C., Turkenburg, W., Gasification of biomass wastes and residues for electricity production, Biomass and Bioenergy, 12 (1997), 6, pp.387-407