



## Programme GlassTrend Seminar

### How to face the technological challenges of the Paris climate agreement?

Würzburg / Marktheidenfeld, Germany, 17<sup>th</sup> – 19<sup>th</sup> April 2018

#### **Tuesday, April 17 Maritim Hotel, Würzburg**

18:00 – 20:00 Welcome drinks for all participants

#### **Wednesday, April 18, Schneider Electric, Marktheidenfeld**

08:00 – 08:45 Transfer by bus from Maritim Hotel to Marktheidenfeld

08:45 – 09:15 Welcome

#### **Session 1: CO<sub>2</sub> legislation/regulations & future trends**

09:15 – 10:00 *Keynote:* Ewald Breunese, Royal Dutch Shell (NL), Energy transition challenges and opportunities for the energy intensive industries

10:00 – 10:30 Fabrice Rivet, FEVE (B), The new ETS after 2020: is winter coming?

10:30 – 11:00 Jim Nordmeyer, O-I (USA), Towards the path for decarbonization - understanding legislative challenges

11:00 – 11:30 Coffee break

## **Session 2: Full electrical and hybrid furnace designs**

- 11:30 – 12:00 Andy Reynolds, Fives (UK): Up-scaling of All-Electric Melting Technology (Identifying the Risks and Challenges)
- 12:00 – 12:30 Rudolf Holz knecht, Plansee (Au),  $\text{MoZrO}_2$  – A New Material For Glass Melting Electrodes
- 12:30 – 13:00 René Meuleman, Schneider Electric (NL/UK): All-electric glass manufacturing from a power supply and process control point of view
- 13:00 – 14:00 Lunch
- 14:00 – 14:30 Stuart Hakes, FIC (UK), 2030  $\text{CO}_2$  Reductions – the use of super boosting and large electric furnaces 350 - 600 tpd
- 14:30 – 15:15 A.J. Faber and Adriaan Lankhorst, CelSian (NL), High pull  $\text{CO}_2$  neutral glass furnaces: technological challenges

## **Session 3: Breakout groups and panel discussion**

- 15:15 – 16:00 Discussion in breakout groups
- 16:00 – 17:00 Brief reporting from breakout groups and panel discussion

## **End of first day of Seminar**

- 17:15 – 18:00 Transfer by bus to Maritim Hotel
- 19:00** **Dinner in Restaurant Der Alte Kranen, Kranenkai 1, Würzburg**  
Offered by Schneider Electric

## **Thursday, April 19, Schneider Electric, Marktheidenfeld**

08:15 – 09:00            Transfer by bus from Maritim Hotel to Marktheidenfeld

### **Session 4: Low carbon raw materials**

09:00 – 09:30            Teru Maehara, AGC (J), Potential application of briquette preheating for industrial glass production

09:30 – 10:00            H. Sesigur, Siseecam (Tr), Melting properties of fiber glass batch with low gas content

10:00 – 10:30            Coffee break

### **Session 5: Low carbon combustion technologies and heat recovery**

10:30 – 11:00            Joerg Leicher, GWI (G), CO<sub>2</sub> Emissions Reduction in the Glass Melting Process by Co-Firing of Biogas or Hydrogen

11:00 – 11:30            Luc Jarry, Air Liquide (F/CN), Combustion technologies and models helping carbon neutrality

11:30 – 12:00            Hisashi Kobayashi and Shrikar Charkravarti, Praxair (USA), Oxy-fuel combustion toward CO<sub>2</sub> neutral glass production

12:00 – 12:30            Bernhard Fleischmann, HVG (G), Renewable energy sources and minimization of the CO<sub>2</sub> foot print when producing glass

12:30 – 13:30            Lunch

### **Session 6: Carbon capture and valorization**

13:30 – 14:00            Richard Riman, Rutgers University (NJ, USA), Cheap CCS - A New Source of Revenue for the Glass Industry?

14:00 – 14:30            Earl Goetheer, TNO (NL), Carbon Capture, Utilization and Storage strategies for the glass sector: realism versus hype

### **Concluding remarks**

**15:00 – 16:00      GlassTrend council meeting**

**16:00                End of GlassTrend Seminar**

16:15                Transfer by bus to Maritim Hotel