HSSE is our top priority

Lost Time Injury Rate (LTIR) ¹

- Health, Safety, Security, and Environment (HSSE) are integral parts of OMV’s business

- OMV Refining & Petrochemicals is substantially below the industry benchmark for occupational safety

- Successful turnaround of Petrobrazi refinery in 2018 with up to 5,000 additional contractor employees without any incident requiring medical treatment

- Full focus on Process Safety in all our assets – the PSER is well below the respective industry benchmark for Tier 1 and Tier 2 events

Process Safety Event Rate (PSER) ²

- Concawe benchmark
- OMV Refining & Petrochemicals

1 Combined Lost-Time Injury Rate for OMV employees and contractors
2 Process Safety: Tier 1+Tier 2 events/million working hours
3 Concawe Manufacturing Industry Benchmark 2018
Schwechat refinery and Borealis plant

Schwechat
- Sole refinery in Austria (9.6 mt), supplying **half of the domestic demand**
- Crude supplied from Trieste port via pipeline as well as domestically (**10% equity crude** intake)
- Wide range of crudes (heavy, medium, light)
- Product pipelines: e.g. jet fuel pipeline to Vienna airport
- **Petrochemically integrated**

Borealis
- Leading polyolefin producer
- “**Across the fence**” with operational synergies
- **Key customer** for OMV’s ethylene and propylene
- Strong contributor to OMV’s profitability
Schwechat refinery: flexible crude intake and integrated into petrochemicals

Sources of processed crude oil 2018

- Kazakhstan: 34%
- Libya: 22%
- Nigeria: 4%
- Austria: 8%
- Others: 17%
- Azerbaijan: 9%
- Iraq: 7%

Product output 2018

- Petrochemicals: 9%
- Gasoline: 20%
- Middle Distillates: 49%
- Heavy Fuel Oil: 3%
- Bitumen: 4%
- Others: 6%
- Fuel & Losses: 9%
Schwechat turns the heavy end of the barrel into high value products

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vacuum residue</td>
<td>14%</td>
<td>- Gasoline &amp; diesel blending</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Steam cracker feedstock</td>
</tr>
<tr>
<td>Distillates</td>
<td>86%</td>
<td>- Low sulfur</td>
</tr>
<tr>
<td>Fuel oil component</td>
<td>3%</td>
<td>- High sulfur</td>
</tr>
<tr>
<td>Heavy component</td>
<td>3.5%</td>
<td>- Power &amp; steam generation</td>
</tr>
<tr>
<td>Bitumen</td>
<td>4%</td>
<td>- Coker feedstock</td>
</tr>
</tbody>
</table>
Schwechat refinery emissions in 2018 contribute less than 2% to total Austrian emissions

- **SO₂**
  - Sulfur Dioxide
  - 2005: 8.59% (National Emission Ceiling: 3,350 tons)
  - 2018: 1.65% (Schwechat refinery emissions: 642 tons)
  - Contribution: (81)%

- **NOₓ**
  - Nitrogen Oxides
  - 2005: 2.96% (National Emission Ceiling: 3,051 tons)
  - 2018: 1.02% (Schwechat refinery emissions: 1,052 tons)
  - Contribution: (66)%

- **VOC**
  - Volatile Organic Compound
  - 2005: 0.54% (National Emission Ceiling: 852 tons)
  - 2018: 0.35% (Schwechat refinery emissions: 549 tons)
  - Contribution: (36)%
Continuous improvement of energy intensity in operations and CO$_2$ reduction

Energy Intensity Index
Schwechat refinery (illustrative)

- Includes 14 measures from implementation to idea
- Includes long-distance heating to Vienna (largest contribution)
- CO$_2$ reduction targets

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>2010</td>
<td>(7) ppt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td>(5) ppt</td>
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<tr>
<td>2022</td>
<td></td>
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</tbody>
</table>
Bio feedstock co-processing – significant contribution to reduction of transportation fuels carbon intensity

**Benefits of co-processing**

- At least 65% **GHG savings** as compared to fossil diesel
- **Effective increase** of renewable share above the blend-wall limits
- Flexibility to utilize the low cost feedstocks without compromising product quality
- **Reduction of costs** and risks of supply by producing instead of buying
- **Improved fuel quality** – energy content and cetane number
- Utilization of **certified feedstock** that is labelled a waste or residue; no land-use issues, no competition with food production or deforestation
- **Synergies** with existing installations leading to a reduced need for investments

**OMV aims to co-process**

~200,000 t/a sustainable feedstocks by 2025 in Schwechat and Petrobrazi
Circular Economy
Chemical recycling of post consumer plastics

- Post-use
  - Energy Recovery
  - Mechanical Recycling
  - Chemical Recycling
- Use
  - Product Manufacturer
  - Plastic Production
- Reuse & Repair

**Chemical Recycling**
- Synthetic crude oil
- Refinery/ petchem process: Short chain → long chain
- ReOil® process: Long chain → short chain

**Mechanical Recycling**
- Re-granulation of sorted material
- High price segment is limited by product quality requirements
- High standards of feedstock quality

**Energy Recovery**
- Production of high calorific and low calorific substitute fuels
- Low value segment
Technology status and scale-up potential of different Plastic-to-Oil solutions

ReOil®
- Pyrolysis process
- Different reactor types are used for plastics-to-oil processes

OMV’s choice – Tubular flow reactor
- Continuous process: not batch, like stirred reactors
- Scalable: due to a solvent - OMV patent
- Similar to refinery processes
- High integration potential into refinery assets
- Comparatively lower CAPEX / OPEX
Refining Digitalization Pilots

#Digitalize
- Wearables
- I-Pool Innovation Platform
- Intelligent Online Library
- Integrated Performance Monitoring
- Mobile Devices

#Enable
- Laboratory Automation
- Predictive Operations Pilot at Thermal Gasoil Unit
- Virtual Operator Training
- Wireless Infrastructure & Sensors
- 3D Empowerment

DIGITAL VALUE DRIVERS

DIGITAL FOUNDATION

Data Lake
- Digital Culture Program

Analytics and Artificial Intelligence
- Digital Learning & Development Initiative

S4/HANA
- Startup Collaboration Initiatives

CEP

Robot Process Automation
- Collaboration Platforms

Digital motion

REFINING

R E F I N I N G
Continuous cost and performance programs lead to a top position in European refining benchmarking

HSB Solomon Associates LLC top ranking for Schwechat and Burghausen \(^1\) and upside for Petrobrazi

<table>
<thead>
<tr>
<th>Fuels</th>
<th>Net Cash Margin</th>
<th>1st quartile</th>
<th>2nd quartile</th>
<th>3rd quartile</th>
<th>4th quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Schwechat, in USD/bbl</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Burghausen, in USD/bbl</td>
<td>X</td>
<td>X</td>
<td>2012 2014 2016 2018</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Petrochemicals</th>
<th>Net Cash Margin</th>
<th>1st quartile</th>
<th>2nd quartile</th>
<th>3rd quartile</th>
<th>4th quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schwechat, in USD/t HVC</td>
<td>X</td>
<td>X</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Burghausen, in USD/t HVC</td>
<td>X</td>
<td>X</td>
<td>2011 2013 2015 2017</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Worldwide Fuels Refinery Performance Analysis (Fuels Study) quartile position considered within Western Europe peers for Schwechat and Burghausen and Central South Europe Peers for Petrobrazi
2. Worldwide Olefin Plant Performance Analysis (Olefins Study) quartile position within Europe peers, including Russia
3. Turnaround in Schwechat petrochemicals
4. Turnaround in Petrobrazi

Adjusted for effect of external power blackout (~20 days unplanned downtime of the steam cracker) (OMV analysis)

13 | Downstream Day, October 10, 2019