

#### DLR.de • Chart 2 > EUCASS2022 Opening Ceremony > Ciezki • EUCASS2022\_OpCere\_Ciezki... > 28.6.2022

## The world is getting more complex and needs answers ...

#### A few keywords

- Earth warming, environmental pollution, overpopulation, ...
- Increased bureaucracy and regulations, ...
- New political situations, paradigm changes, ...
- ...

#### New worlds

- New Space
  - New chances, new business, new threats?, ...
    New Space *and* sustainability or New Space *vs*.
  - sustainability?Space law, space regulations?
- Access to chemicals and materials is getting more difficult
  - Is ISRU a chance?
- Living in space, space tourism, ...
- A

DLR

#### Toolbox for the future

- · Sustainable space
- Reusability
- Resilience
- Collaboration
- New technologies
  - (e.g. AI, ALM, ...)
- Efficient, reusable, green propulsion systems
- Production in space (propellants, water, ...)Repair, upgrade, recycling, ... in space
- ....



DLR.de • Chart 4 > EUCASS2022 Opening Ceremony > Ciezki • EUCASS2022_OpCere_Ciezki > 28.6.2022
Conclusions
We can solve severe current and future tasks only by collaboration
<ul> <li>Sustainability is the keystone to the future on earth and in space</li> </ul>
<ul> <li>A long-term strategy is necessary for an intact environment for working and living on earth and in space with socio-economic advantage</li> <li>→ Where shall Europe be in 10 years, 20 years, 50 years?</li> </ul>
<ul> <li>Europe needs an independent access to space in all thrust classes from small to large payloads</li> </ul>
<ul> <li>→ for exploration, institutional activities, vertical industry (new space), …</li> <li>→ Increased efforts are necessary to fulfil this goal with reliable, green, and low-cost propulsion systems</li> </ul>
Robust visions with a chance to be realized and a robust planning together with a sufficient and reliable financial support
<ul> <li>Indiger foresignted roadmaps for technology development</li> <li>increased scientific efforts to tackle tasks and problems, technology pre-development, developing new ideas and solutions,</li> </ul>
Strong need for enhanced scientific activities, collaborations and exchange
EUCASS is very important! International forum for scientific exchange and
∠ to discuss new ideas
r DLK















### www.DLR.de • slide 12 > EUCASS2022 Opening Ceremony > Ciezki • EUCASS2022\_OpCere\_Ciezki... > 28.6.2022 **Research and development test facility P8** - Research for new engine generations - Corporate European research and Fokus on: development of technology - Propellant injection and - Aim: higher reliability and atomization increased performance as well as improved cost efficiency of - Combustion (in)stability propulsion systems Heat transfer High pressure combustion - Fatigue life analysis of thermal and mechanically highly loaded structures - Nozzle flow DLR

www.DLR.de • slide 13 > EUCASS2022 Opening Ceremony > Ciezki • EUCASS2022\_OpCere\_Ciezki... > 28.6.2022

# Low pressure test facility P8.3

In order to be able to test on a smaller scale in the future – turbopumps and

 entire rocket propulsion systems, the new P8.3 test stand has a lowpressure supply system

DLR Lampoldshausen is thus adding an important aspect to its extensive test portfolio in the field of research and development

DLR



