



AGGM Austrian Gas Grid Management AG

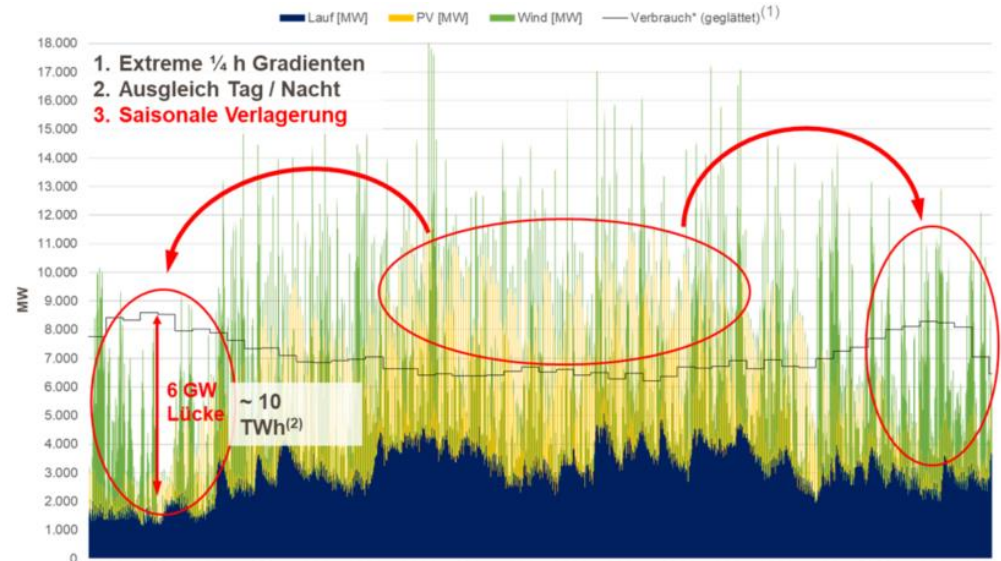
Sector coupling, hydrogen and biomethan Competence Center Training

Joint Information Day
Vienna, 05.12.2019

- ▶ Sector coupling
 - ▶ Why do we need it?
- ▶ What contribution does AGGM make?
 - ▶ Hydrogen map
 - ▶ Biogas map

- ▶ Competence Center Training

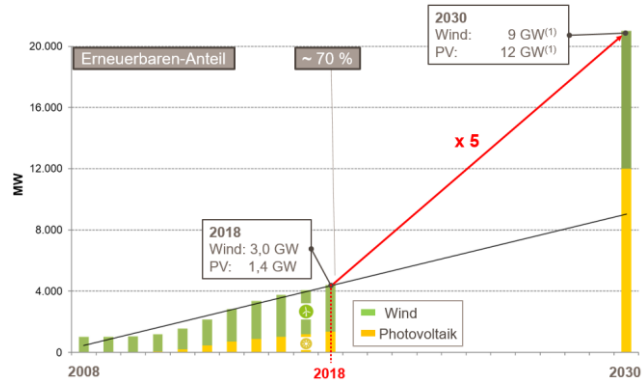
- ▶ Joint consideration of all energy systems: electricity, gas, heat, mobility
- ▶ Central element of #mission2030 to achieve the 2030 climate goals
 - ▶ 100% electricity production from renewable energy sources, national, balanced
 - ▶ GHG reduction: minus 36% compared to 1990 by 2030



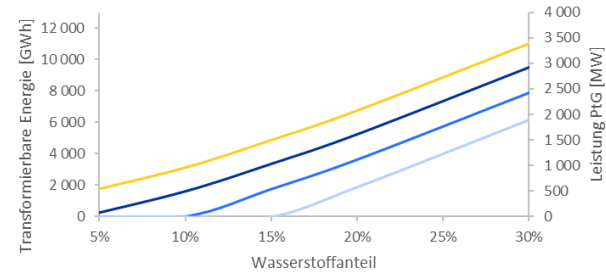
(1) Mittelwert aus den wöchentlichen Minima und Maxima
(2) Notwendigkeit zur saisonale Verlagerung

Quelle: APG

Renewable gases für seasonal storage



source: APG



source: AGGM

- ▶ Necessary expansion of installed capacity by 2030: (source: APG)
 - ▶ wind x 3
 - ▶ PV x 9
- ▶ Seasonal storage in the TWh range only possible with power-to-gas
- ▶ Necessary installed power-to-gas capacity 2030: approx. 2 GW (Source: APG)
- ▶ transformable energy potential in the gas distribution network: up to 11 TWh per year as hydrogen
- ▶ With additional methanisation, all available (surplus) electricity could be fully utilized at all times.
- ▶ In combination with the biogas plants as CO₂ source, methanisation would double the biomethane output!

What contribution does AGGM make?

Out of our tasks for infrastructure planning:

- ▶ **Hydrogen map**
 - ▶ Locate the best sites for hydrogen injection in the gas network

- ▶ **Biogas map**
 - ▶ Locate the best sites for biomethan injection in the gas network



source: AGGM

► Objective:

- determination of optimal sites for hydrogen injection into the gas grid

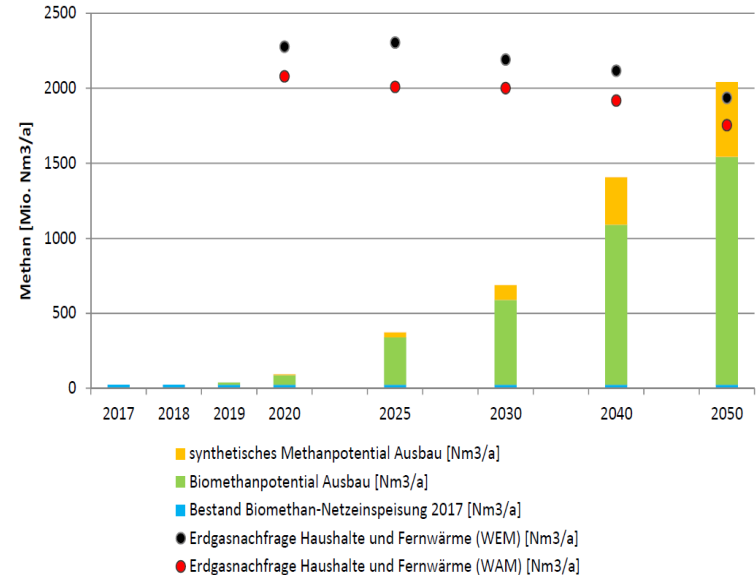
► Analysis of:

- Power grid data (220 + 380 kV grid, 110 kV grid - selection)
- Gas network data (transmission and distribution network)
- Seasonal flow profiles in the gas networks

► Result:

- sites with firm / interruptible injection of hydrogen in the gas grid by electrolysis

- ▶ Study by the Johannes Kepler University Linz: "Increasing the use of renewable methane in the heating sector"
 - ▶ First stage: until 2030:
 - 600 million Nm³/a biomethane
 - ▶ Second stage: 2030 to 2050
 - 1.5 billion Nm³/a biomethane + 0.5 billion Nm³/a synthetic methane
- ▶ Other studies indicate a biomethane potential of 1.5 to 4 billion Nm³/a



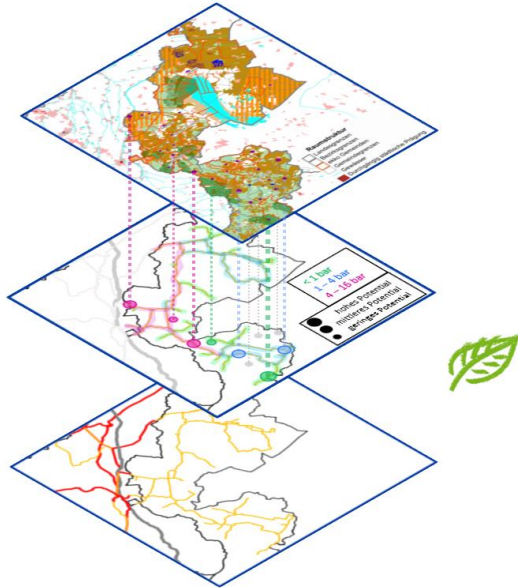
Quelle: Energieinstitut an der JKU Linz

Costs for connecting existing biogas plants

- ▶ Study commissioned by ÖVGW
- ▶ The study looked at 187 out of about 301 plants

Present value of CAPEX + OPEX over 20 years [million EUR]	Number of plants	Power [Nm ³ /h biomethan]	Energy per year [approx. million Nm ³ /a]
100	74	16.813	140
200	133	23.119	184
313	187	25.991	204

- ▶ The cost of connecting existing biogas plants to the gas grid is approximately 5 - 10% of the total cost of biomethane generation
- ▶ The cost of gas treatment is approximately 17% of the total cost of biomethane generation



Quelle: AGGM

- ▶ Development of additional potential
- ▶ Project AGGM:
 - ▶ Creation of a biogas map
 - ▶ Identification of suitable zones for the connection of biogas plants to the gas network
- ▶ Pilot project with Netz Burgenland
 - ▶ Analysis to identify the best connecting points

▶ Training objectives

- ▶ Description of the Austrian gas market model
- ▶ regulatory framework for trading within the Austrian gas market

▶ Dates:

- ▶ 02.03.2020 in german
- ▶ 13.10.2020 in english

▶ Registration:

- ▶ www.aggm.at by February 2020

▶ Solo AGGM CCT

- 22.4. 2020 DE
- 12.11.2020 DE

▶ 1st day: AGGM topics

- ▶ Modul 1: Austrian gas market model - introduction
- ▶ Modul 2: Capacities and third party access
- ▶ Modul 3: Infrastructure planning
- ▶ Modul 4: Balance group registration and data publication
- ▶ Modul 5: Schedule management, balancing, gas flow management
- ▶ Modul 6: Congestion management

▶ 2nd day: CEGH topics

- ▶ Austrian Market model
- ▶ CEGH at a glance
- ▶ Virtual trading point
- ▶ PEGAS CEGH Gas Exchange
- ▶ Legal topics

DI Helmut Wernhart

AGGM Austrian Gas Grid Management AG

Floridsdorfer Hauptstraße 1

floridotower

1210 Wien / Vienna

Austria

Tel. +43 (1) 27 560-28872

Fax +43 (1) 27 560-628872

helmut.wernhart@aggm.at

www.aggm.at



AGGM Austrian Gas Grid Management AG

Market Information

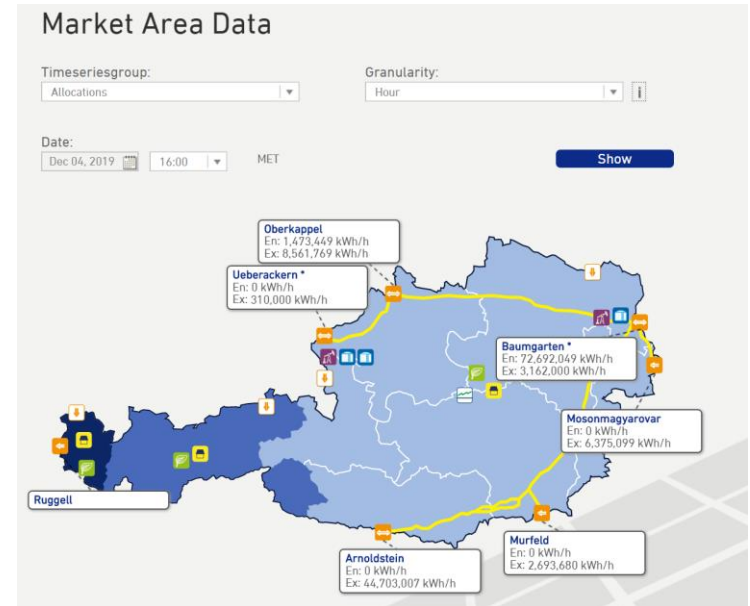
Market and Distribution Area Manager (MADAM)

- ▶ Amendments to the terms and conditions of AGGM
- ▶ Standard and flexible products of the Merit Order Lists
- ▶ News from the AGGM-Platform
- ▶ The new balancing regime 2021 according to the draft Gas Market Model Ordinance 2020

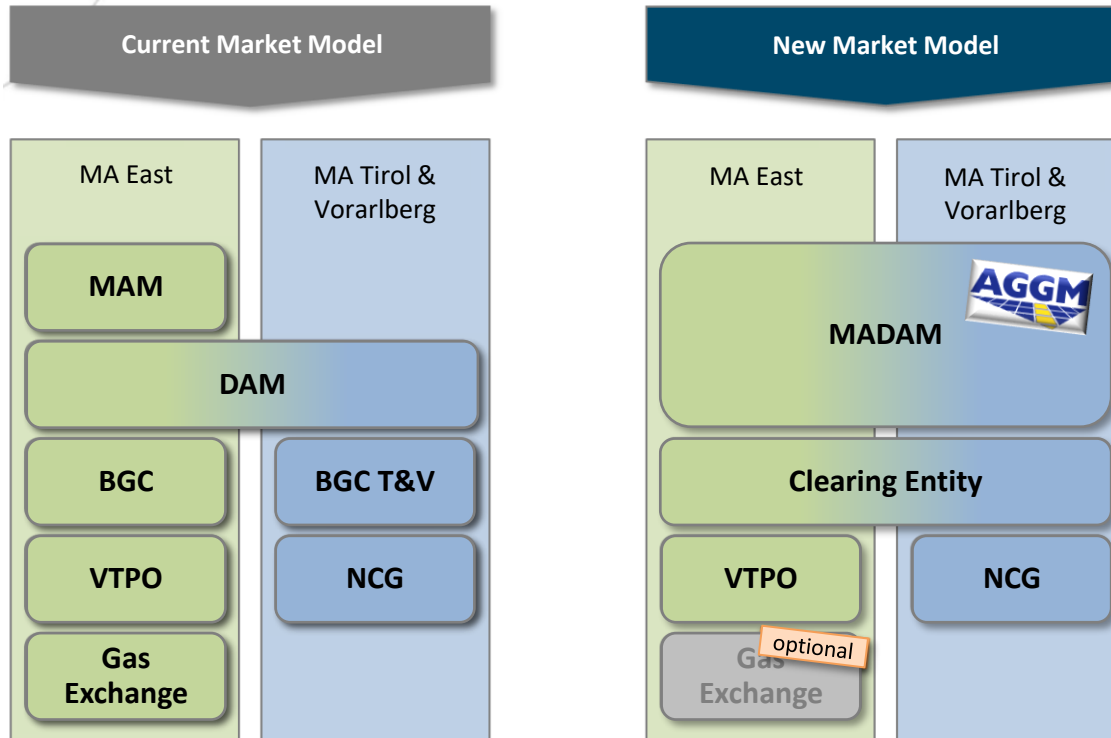
- ▶ The sum of the balancing incentive markups, which triggers a payment obligation, increased to € 500,-
- ▶ After termination of the balance group representative activities in the market area east, AGGM settles remaining imbalances on the carry-forward account at the reference price of the VTP of the last day of BGR-activity

- ▶ Location based products with respect to shortfall situations in the distribution area
- ▶ Standard products of the Merit Order List
 - ▶ Fulfillment usually at storage entries or exits
 - ▶ Binding offers day ahead or within day
 - ▶ 30 minutes call lead time for AGGM
- ▶ Flexible products of the Merit Order List
 - ▶ Fulfillment at end consumers greater than 10MW capacity (or respective oversupply)
 - ▶ Binding offers with individual structure and lead time
- ▶ No nomination procedure necessary
- ▶ Please register at the Balance Group Coordinator AGCS under <https://www.agcs.at/de/registrierung/anbieter-fuer-physikalische-ae>

- ▶ **Austria Map**
 - ▶ Overview on technical, booked, nominated, and renominated capacities, as well as physical flows at the entry and exits points
 - with links to the respective time series displays on the platform
 - ▶ Aggregated information at Baumgarten and Überackern (aggregated by AGGM)
 - ▶ Allocation data now available
- ▶ **Allocation data on BG-Level in the Log-in Area now**
 - ▶ available intra-day and day-ahead
 - ▶ additionally downloadable via API interface



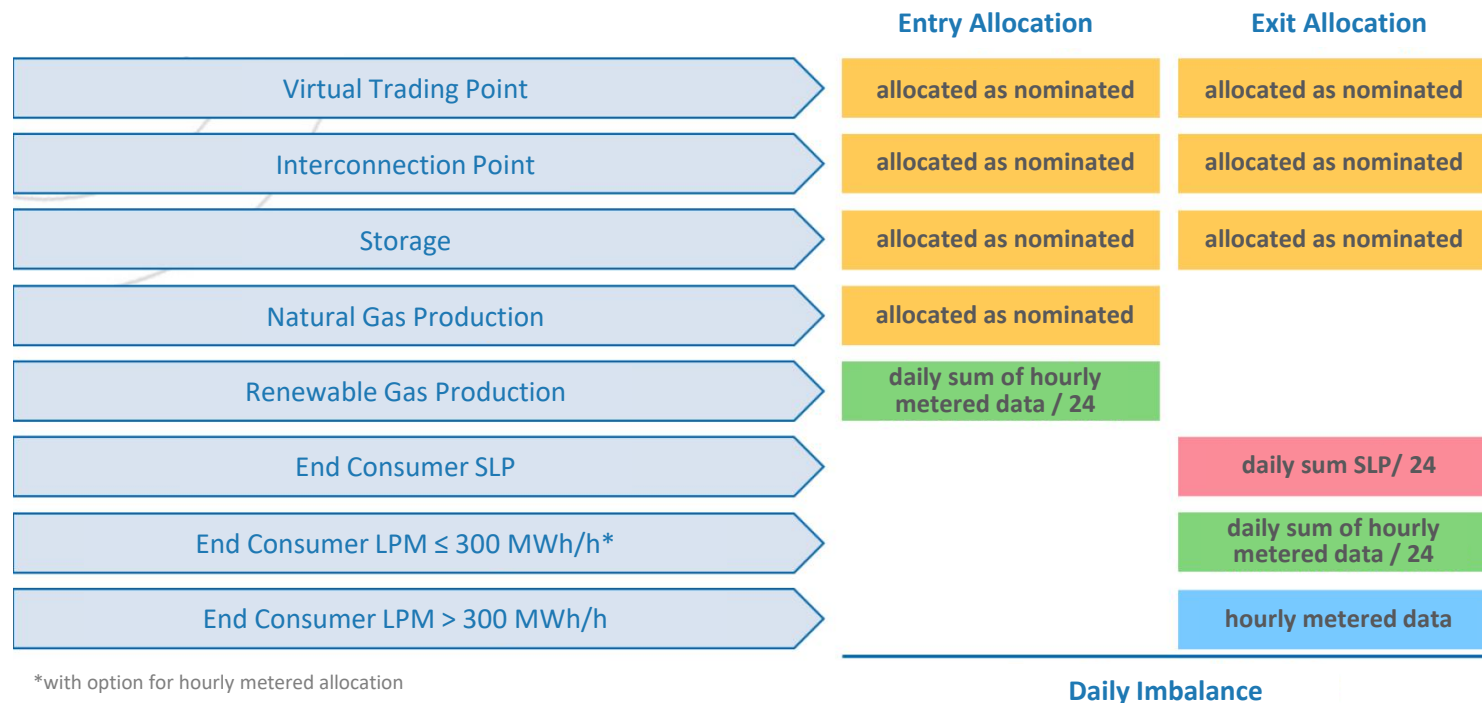
The New Balancing Regime 2021 – Institutional Structure*



*according to the draft Gas Market Model Ordinance 2020

- ▶ Integrated daily balancing (transition & distribution system)
 - ▶ Marginal sell or buy price with application of **3%** small adjustment according to NC BAL
- ▶ Within day obligations
 - ▶ Page 9
- ▶ Market area status and balance group status
 - ▶ Page 10
- ▶ Cancellation of end consumer nominations
 - ▶ Except large end consumer schedules for operational reasons
- ▶ Commercial neutrality and cost allocation
 - ▶ Page 11
- ▶ Adjustments on DSO Level
 - ▶ Slide 12

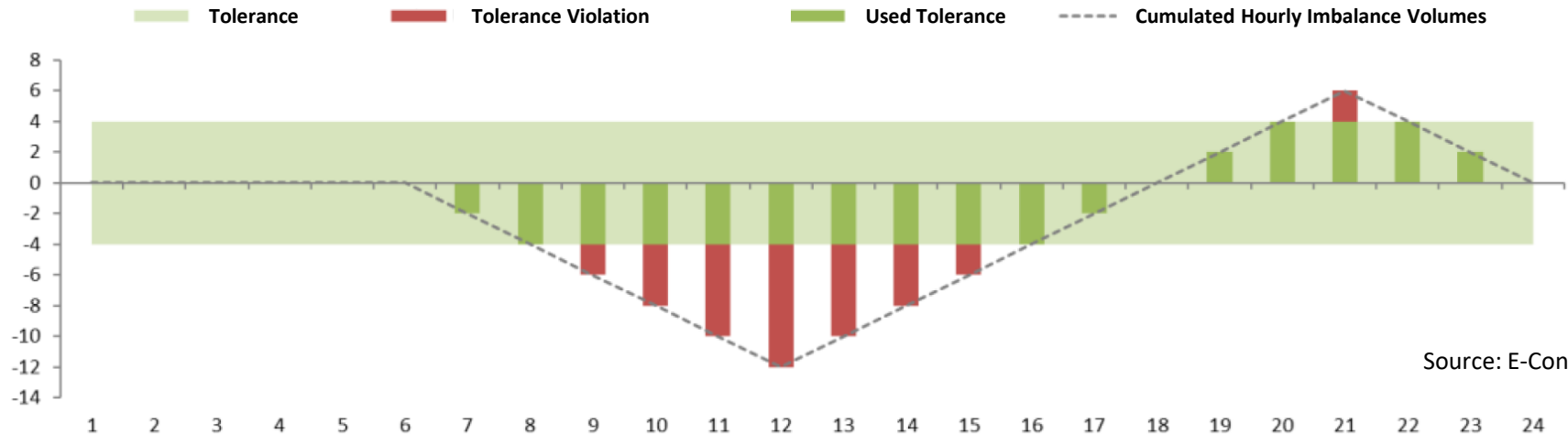
The New Balancing Regime 2021 – Allocation Methods



*with option for hourly metered allocation

The New Balancing Regime 2021 – Within Day Obligations

- ▶ **4%** tolerance on the daily end consumer allocation
- ▶ Pricing: Netted average costs of BE bought and sold / cumulated hourly imbalance volume per gas day
- ▶ To be charged only in cases when MADAM buys and sells BE within gas day



Source: E-Control

- ▶ **Market area status data provision**
 - ▶ Market area balance
 - ▶ Physical balancing information (volumes, prices, etc.)
 - ▶ Market area demand
 - ▶ Linepack limits and usage

- ▶ **Balance group status data provision**
 - ▶ Individual daily imbalance calculated from
 - Nominations
 - SLP-forecasts
 - Preliminary end consumer meter data
 - Preliminary calculated end consumer data
 - Preliminary allocated renewable gas production volumes

- ▶ Commercial neutrality
 - ▶ balancing costs and revenues out of balancing activities by the MADAM and imbalance charges towards balance group representatives
 - ▶ insured by neutrality charges set every 3 months by the clearing entity

From the perspective of a balance group responsible:

- ▶ Cancellation of the residual load allocation as a balancing component for end consumer supplying balance groups
- ▶ Preliminaries for the application of actual calorific values for the clearing and invoicing of end consumers as of 2023

- ▶ End of 2019: Publication of the Gas Market Model Ordinance 2020
- ▶ 1st October 2021: Start of the new balancing regime
- ▶ 1st January 2023: Start of applying actual calorific values for the clearing and invoicing of end consumers

Gernot Haider

Floridsdorfer Hauptstraße 1

floridotower

1210 Wien / Vienna

Austria

Tel. +43 (1) 27 560-28830

Fax +43 (1) 27 560-628872

gernot.haider@aggm.at

www.aggm.at