



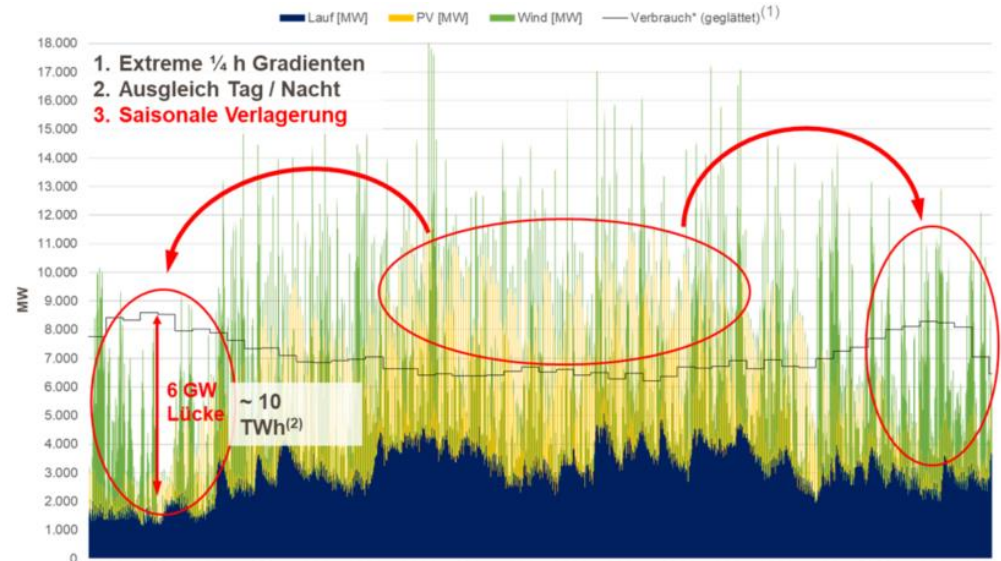
AGGM Austrian Gas Grid Management AG

# 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

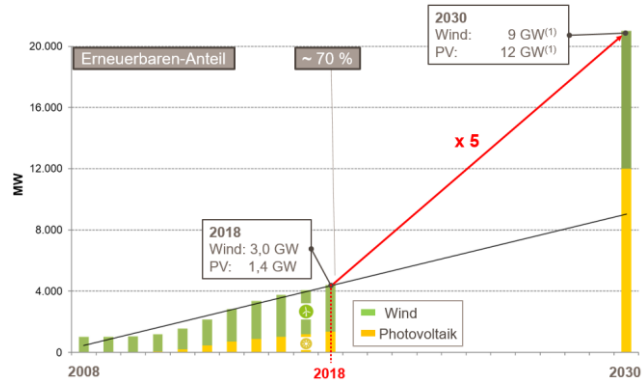
- ▶ Joint consideration of all energy systems: electricity, gas, heat, mobility
- ▶ Central element of #mission2030 to achieve the 2030 climate goals
  - ▶ 100% electricity production from renewable energy sources, national, balanced
  - ▶ GHG reduction: minus 36% compared to 1990 by 2030



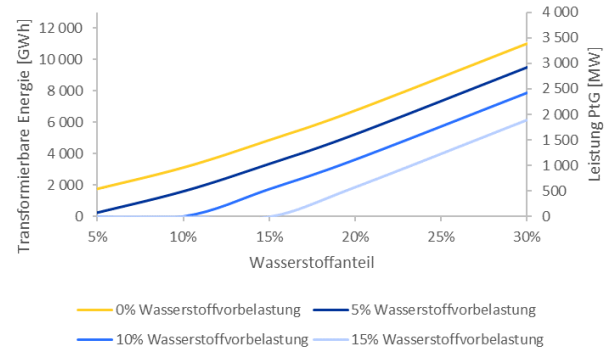
(1) Mittelwert aus den wöchentlichen Minima und Maxima  
(2) Notwendigkeit zur saisonale Verlagerung

Quelle: APG

# Renewable gases for 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 CO<sub>2</sub> source, methanisation would double the biomethane output!



source: AGGM

## ► Objective:

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

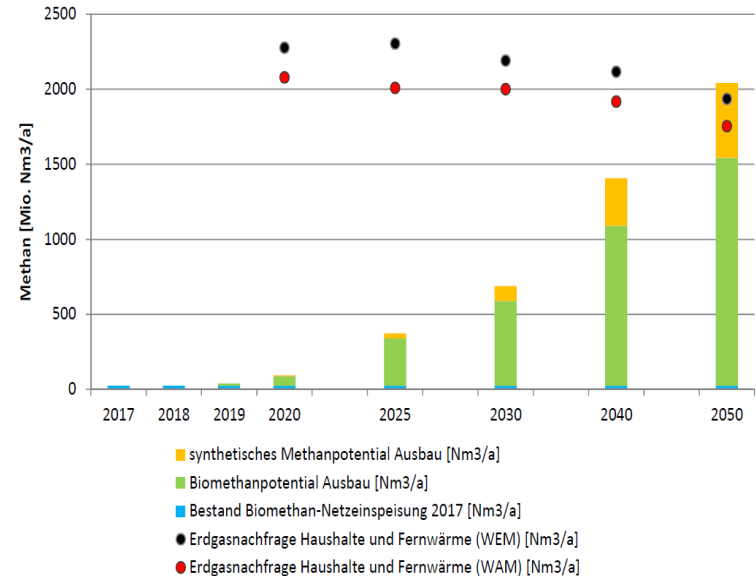
## ► Analysis of:

- 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 Nm<sup>3</sup>/a biomethane
  - ▶ Second stage: 2030 to 2050
    - 1.5 billion Nm<sup>3</sup>/a biomethane + 0.5 billion Nm<sup>3</sup>/a synthetic methane
- ▶ Other studies indicate a biomethane potential of 1.5 to 4 billion Nm<sup>3</sup>/a



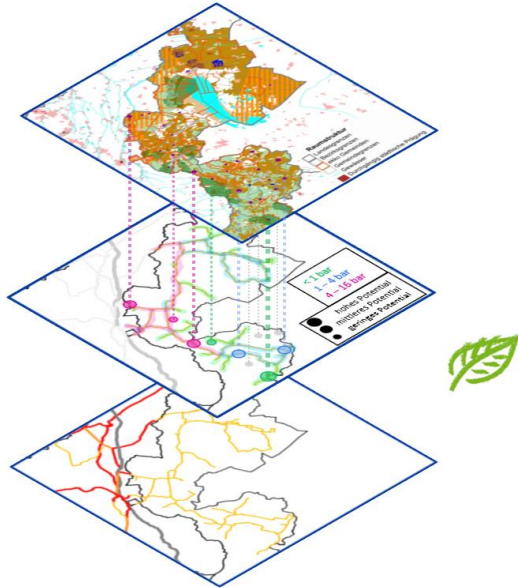
Quelle: Energieinstitut an der JKU Linz

# 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 <sup>3</sup> /h biomethan]	Energy per year [ approx. million Nm <sup>3</sup> /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.-03.03.2020 in German
- ▶ 13.-14.10.2020 in Englisch

## ▶ Registration:

- ▶ [www.aggm.at](http://www.aggm.at) by February 2020

## ▶ Solo AGGM CCT

- 22.4. 2020 DE
- 12.11.2020 DE

## ▶ 1<sup>st</sup> 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

## ▶ 2<sup>nd</sup> day: CEGH topics

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

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# Market Information

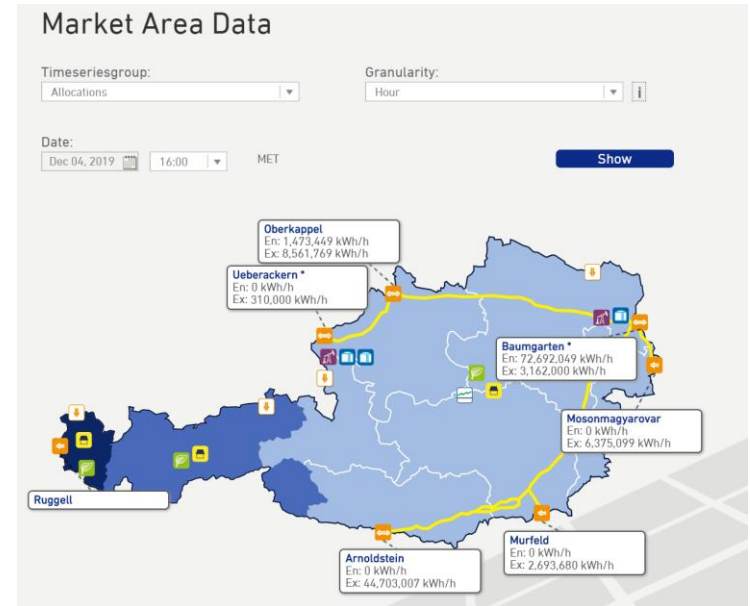
Market and Distribution Area Manager (MADAM)

- ▶ 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

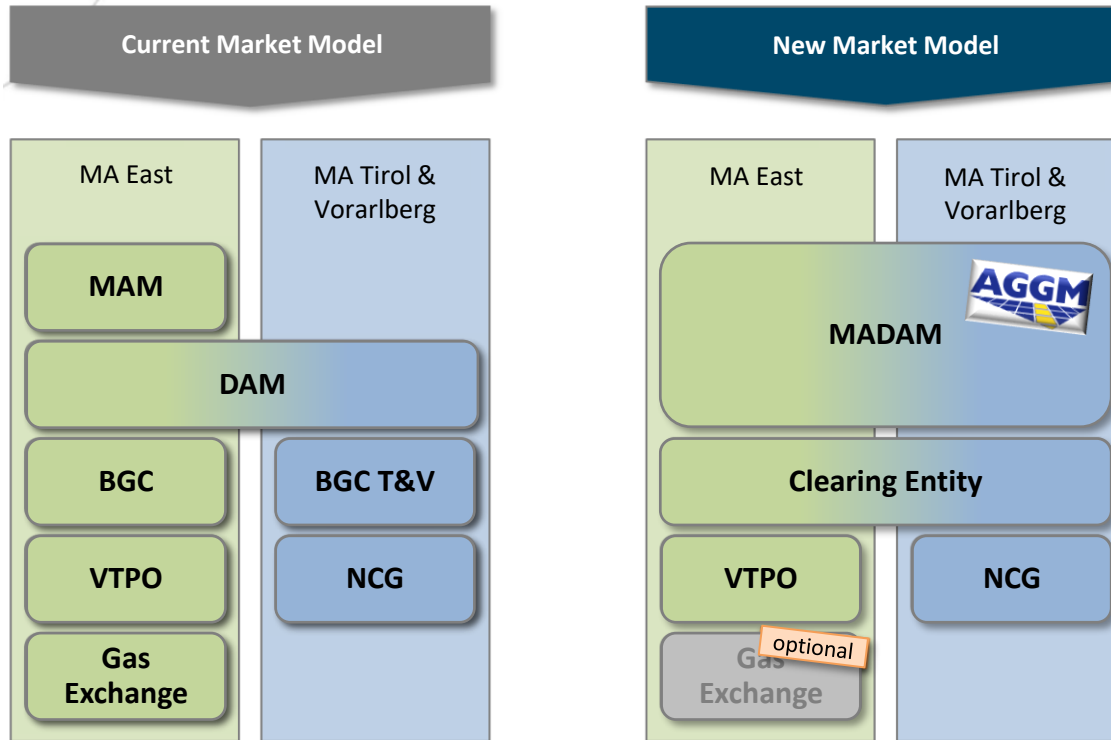
- ▶ The sum of the balancing incentive markups, which triggers a payment obligation, increased to € 500,-
- ▶ After termination of the balance group representative activities in the market area east, AGGM settles remaining imbalances on the carry-forward account at the reference price of the VTP of the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

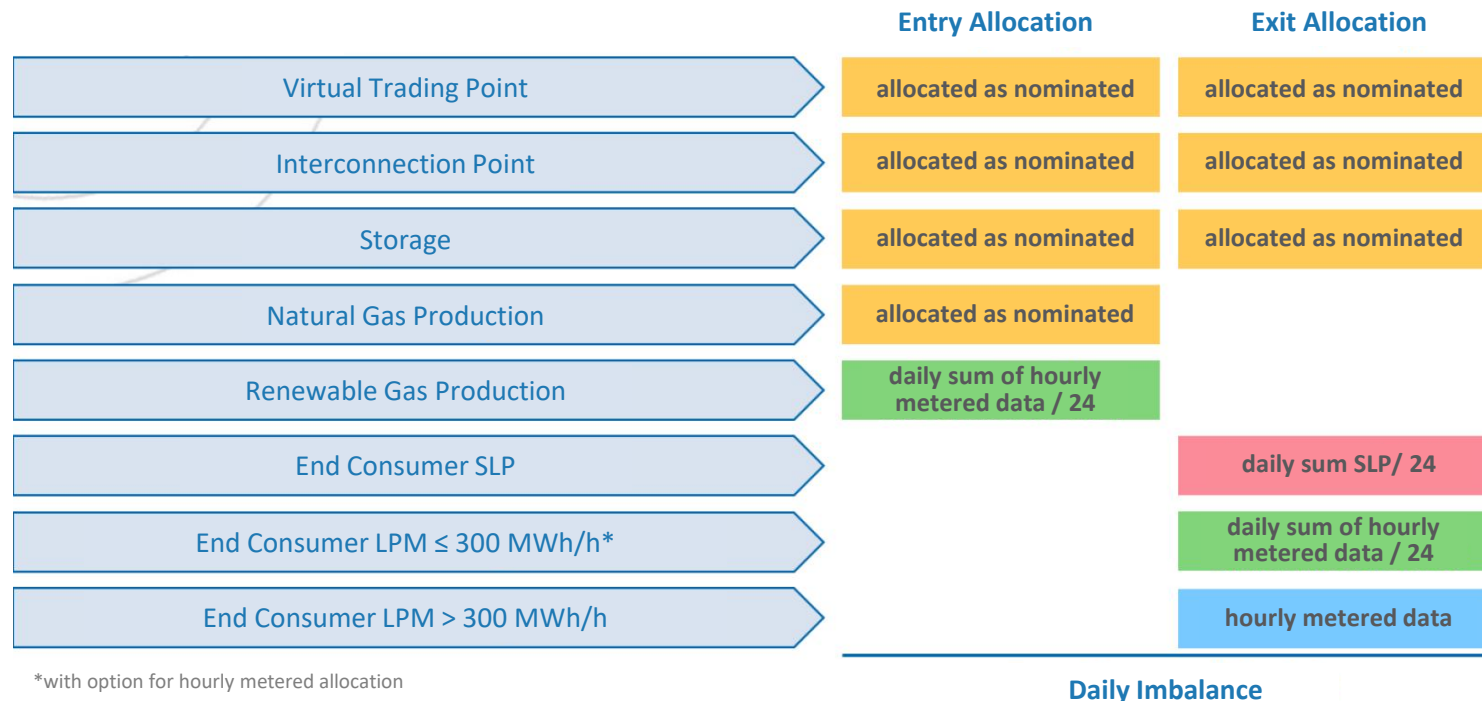


\*according to the draft Gas Market Model Ordinance 2020



- ▶ 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

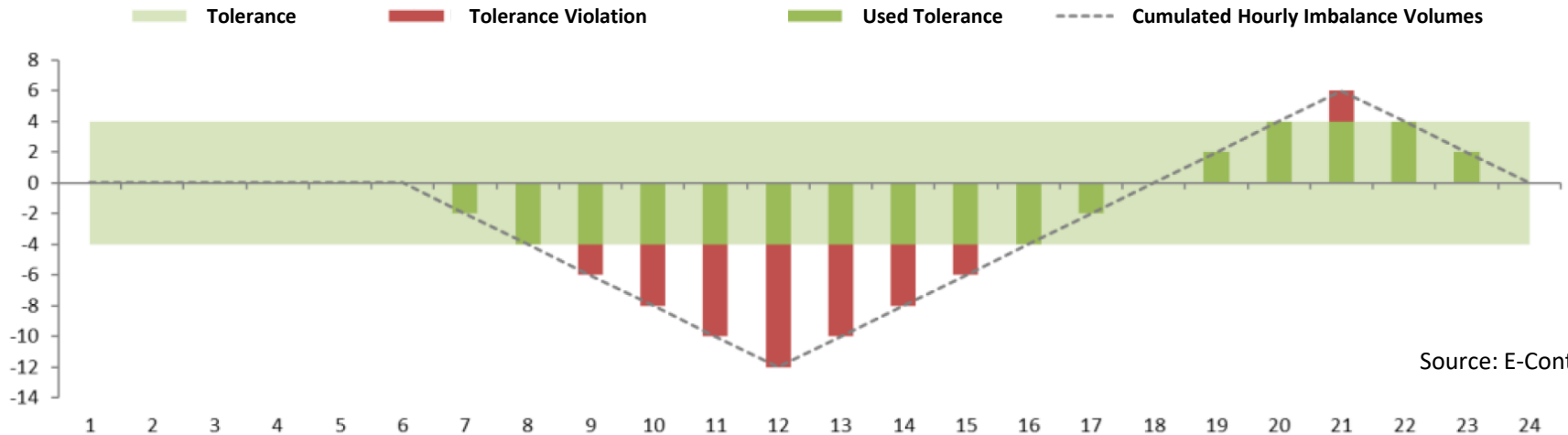
# The New Balancing Regime 2021 – Allocation Methods



\*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
- ▶ 1<sup>st</sup> October 2021: Start of the new balancing regime
- ▶ 1<sup>st</sup> January 2023: Start of applying actual calorific values for the clearing and invoicing of end consumers

- ▶ Please register for our Newsletter under <https://platform.aggm.at/mgm/news/newsletter/subscribe.do>



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