



Swiss PRESENTATION

Lionel Perret, Planair SA

61st Task 1 Meeting October 24th 2023

Technology Collaboration Programme

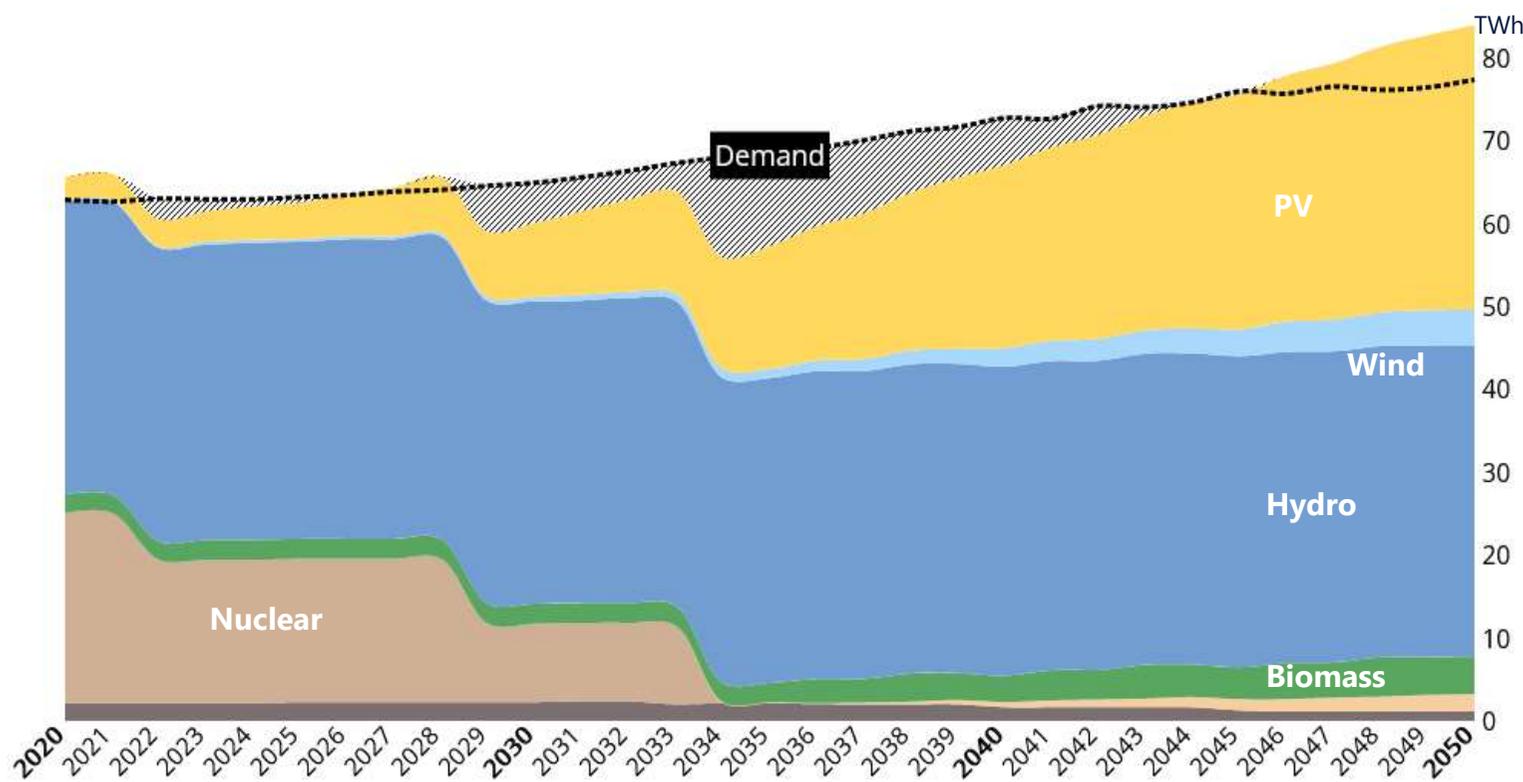
by **iea**

Country – general information



- 9 M inhabitants – 41'285 km²
- 70% in mountainous area 23% above 2'000m

PVPS



No new nuclear plant

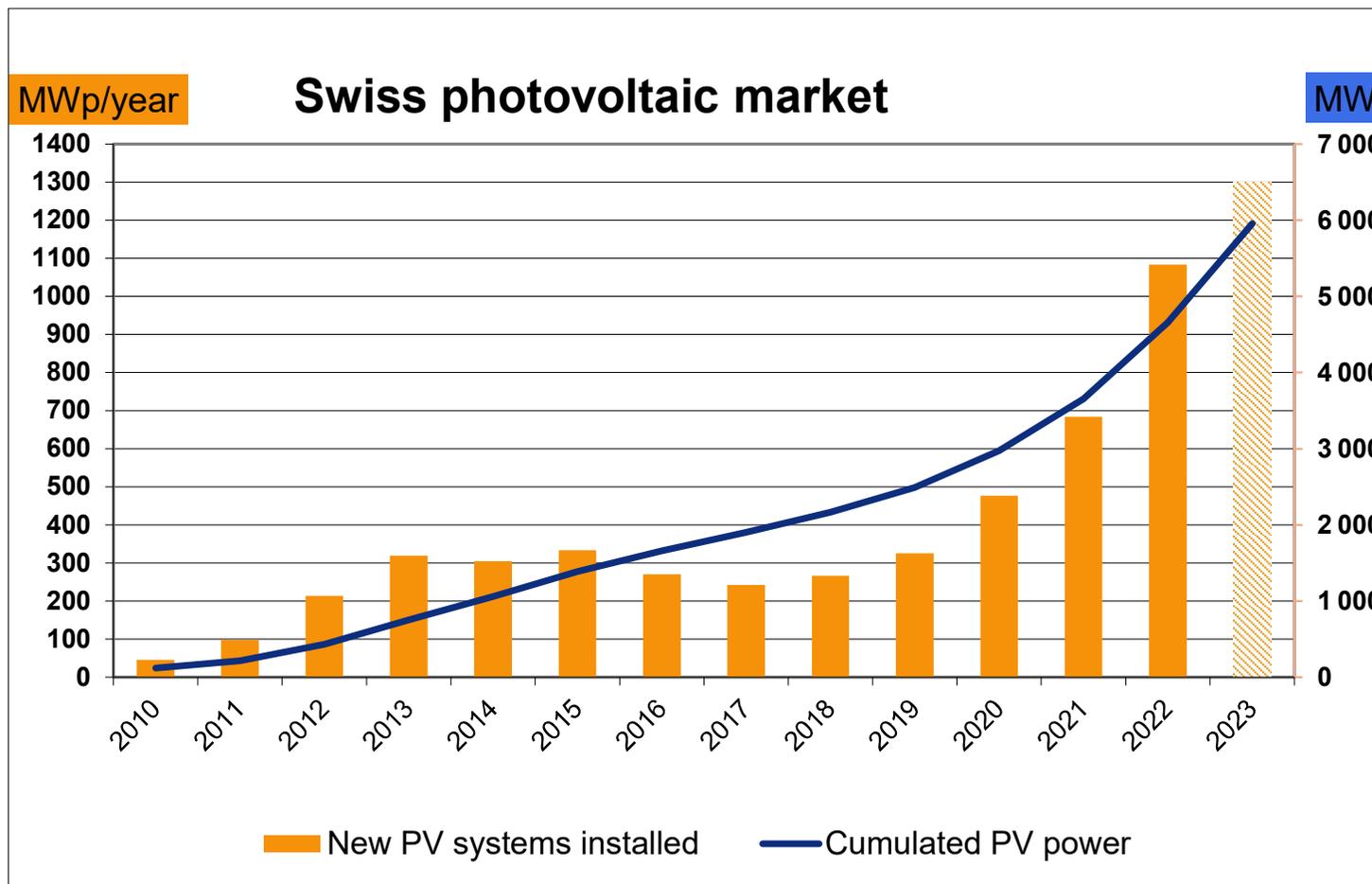
PV Official Goal : 34 TWh in 2050

Swissolar : 50 TWh in 2050

Politicians : 76 TWh in 2050 to decarbonize also industrial heat

<https://powerswitcher.axpo.com/>

PV Market evolution – annual & cumulative

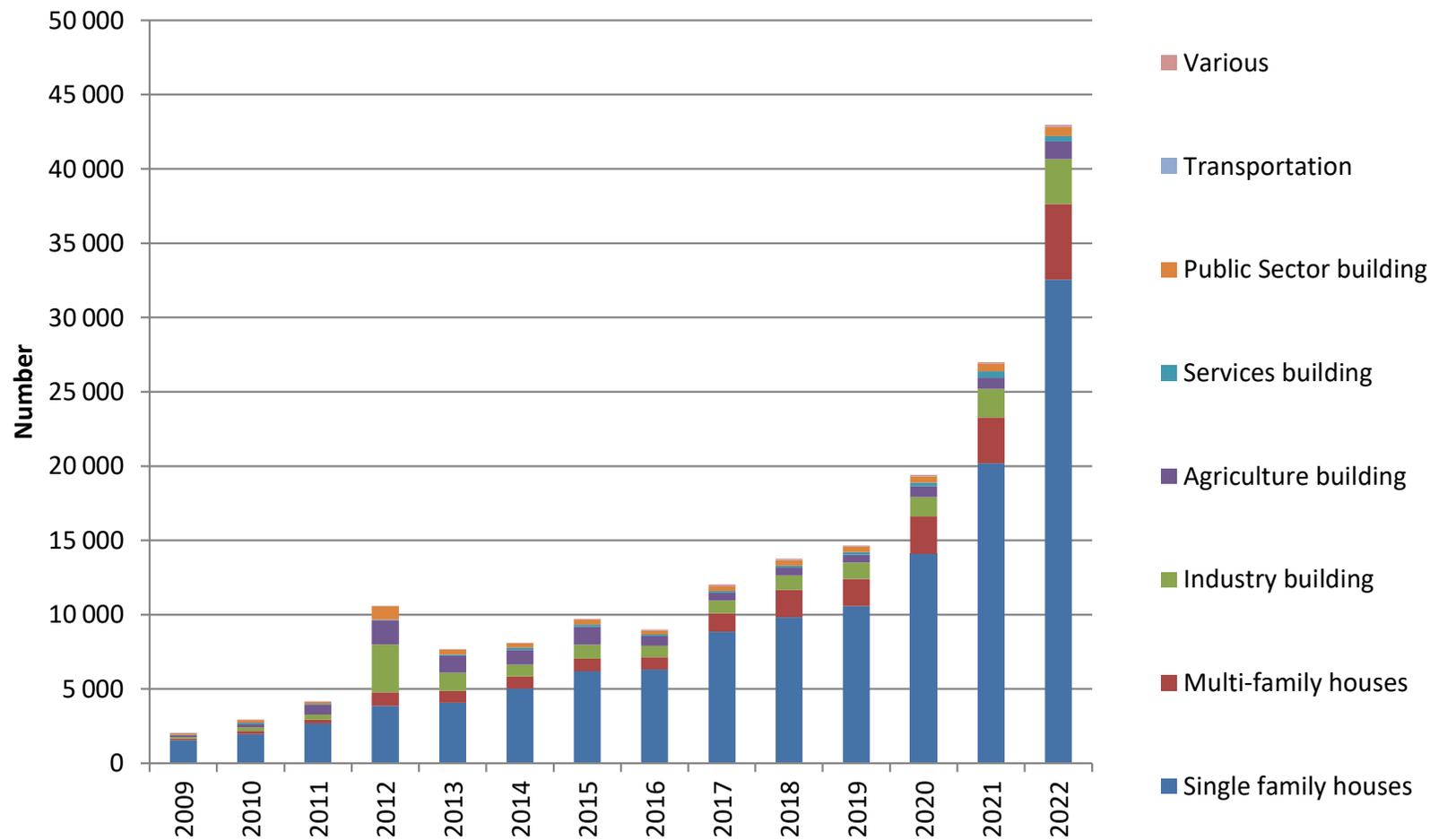


2022 :
1'083 MW
+58%

Solar share
6.77% in 2022
8.5% in 2023

2023 : min.
+20% expected

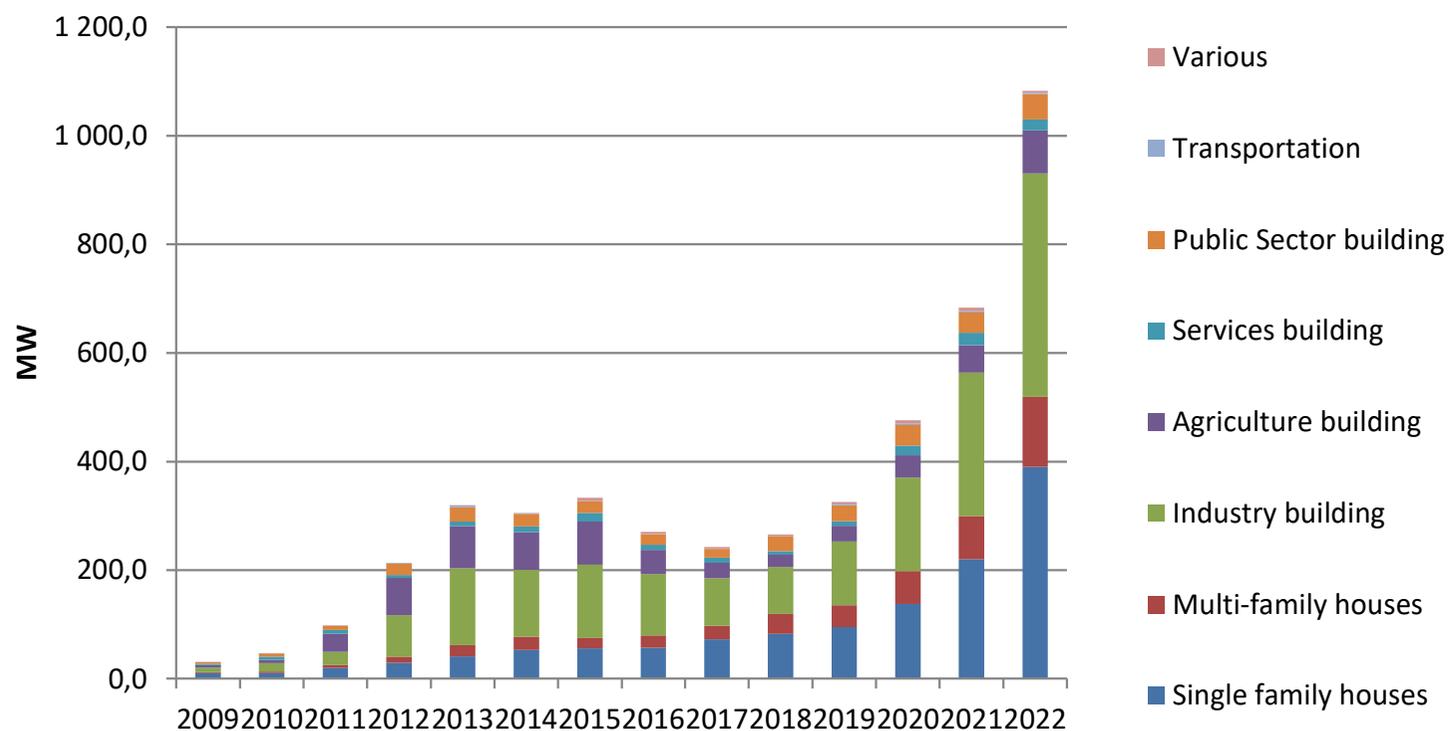
PV Market evolution – numbers of systems



PV Market segments



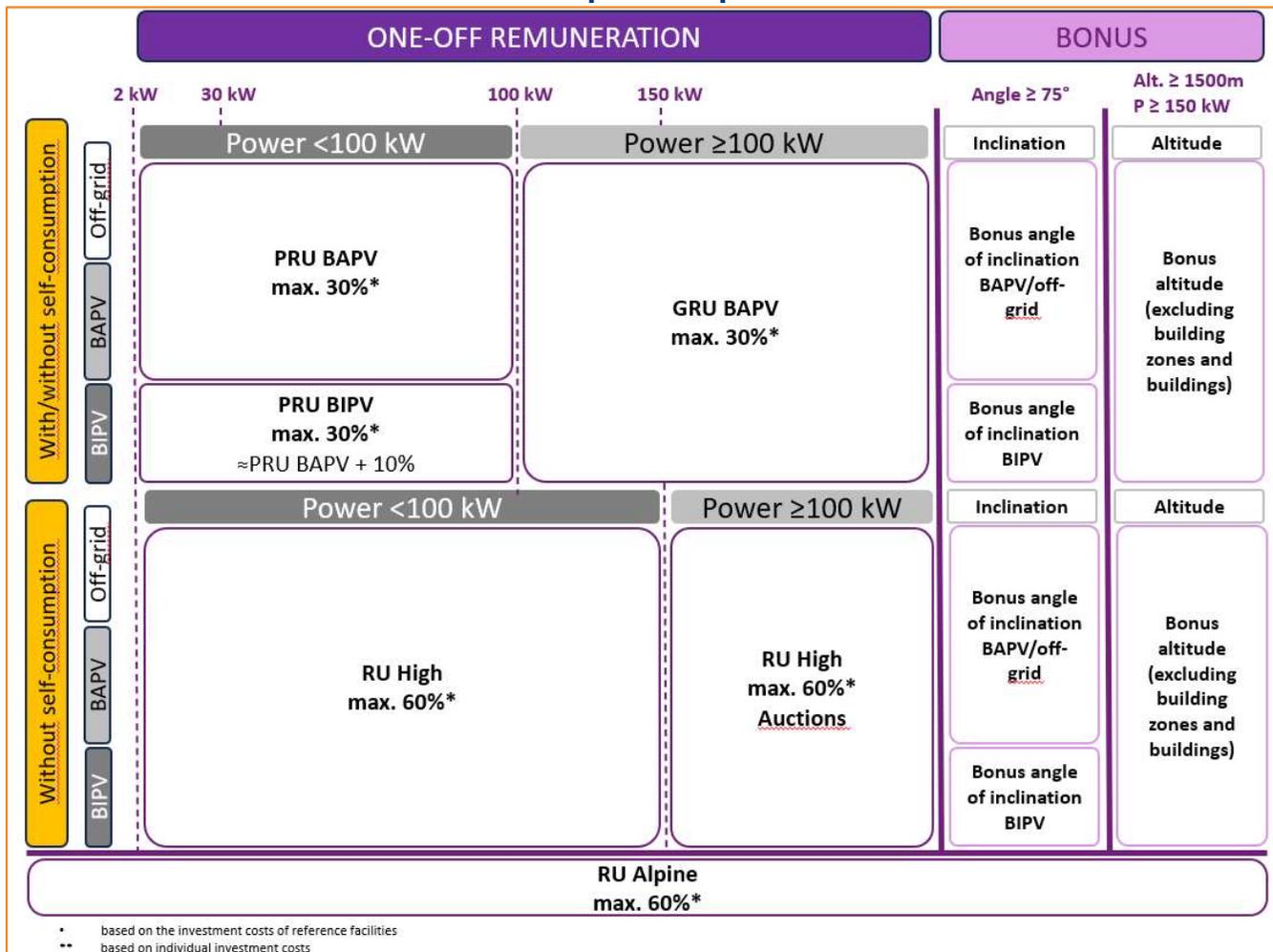
Almost only Building : BAPV 956 MWp - BIPV 127 MW - IIPV in development



Overview of market drivers



- Investment subsidies & selfconsumption policies



Showcase system



- Bicycle Integrated PV



L'entreprise SIG et l'État de Genève dévoilent la première piste cyclable couverte de panneaux solaires de Suisse. Crédit photo : SIG



Vision : 2'000 km BiPV offensive for 2 TWh

Commissioned 200 kWp in Geneva

PV Industry (if relevant)



- Investment especially in BIPV manufacturing

Cell/Module manufacturer (or total national production)	Technology (sc-Si, mc-Si, a-Si, CdTe, CIGS)	Maximum production capacity [MW/yr]	
		Cell	Module
Wafer-based PV manufacturers			
Megasol Switzerland *	Mono Perc	-	400 MW
3S Solar Plus**	Mono Perc	-	240 MW
Thin film manufacturers			
Flisom	Flexible CIGS	-	15 MW pilot line
Totals		0	655 MW
Studer Innotec	Off grid /flexible inverters		200 MW

PVPS



Key subjects of the past 6 to 12 months



- **Alpine solar topic is very hot !**
- Cantonal acceleration law for fast track authorization failed in a popular vote (53% against)
- Several pilots project commissioned for this winter
- Projects have to commissioned 10% of their capacity until Dec. 2025 to get full subsidies – challenge with social acceptance & grid access !



Key subjects of the past 6 to 12 months



PVPS

Key subjects of the past 6 to 12 months



- National : Referendum because of of the « risk of potential ground mounted PV in the Swiss landscape ! »
- Referendum launched against the new energy/grid law
 - 35 TWh new renewable in **2035**
 - Floor FIT for renewable installation above 150 kW
 - Obligation to install on **new** roofs and/or facades of building over 300 m² with possibility to canton to extend below 300 m²
 - Collective self consumption within a cities with 50% reduction on grid cost
 - National interest for planned large scale solar PV plant
- New proposed law in canton Vaud (having already a obligation a new roof since 2014)
 - “the total potential of roof for PV has to be used for:
 - any new building
 - if the building is renovated, or in any case, until 2039”

BIPV in Switzerland



- Balcony integrated PV : special Swiss made product BalPV



VIPV Project - Swiss Federal Roads Office (FEDRO)



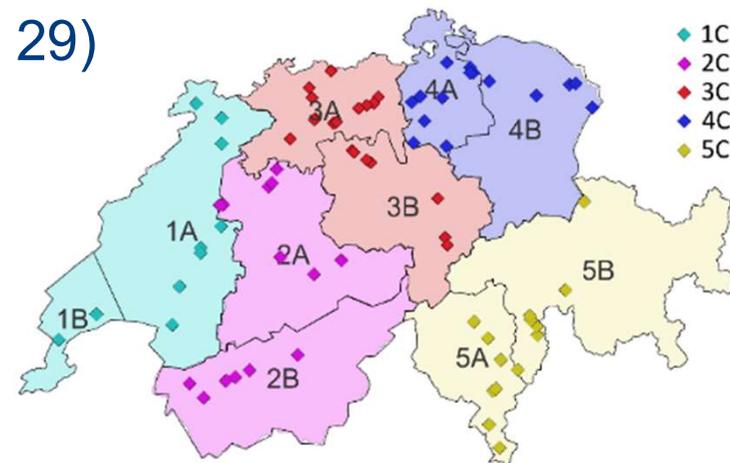
- **Legal modification** (Lene art. 41b + ORN art. 29)

- **Ownership and responsibility**

- Built infrastructure: FEDRO
- PV infrastructure: third party

- **Process**

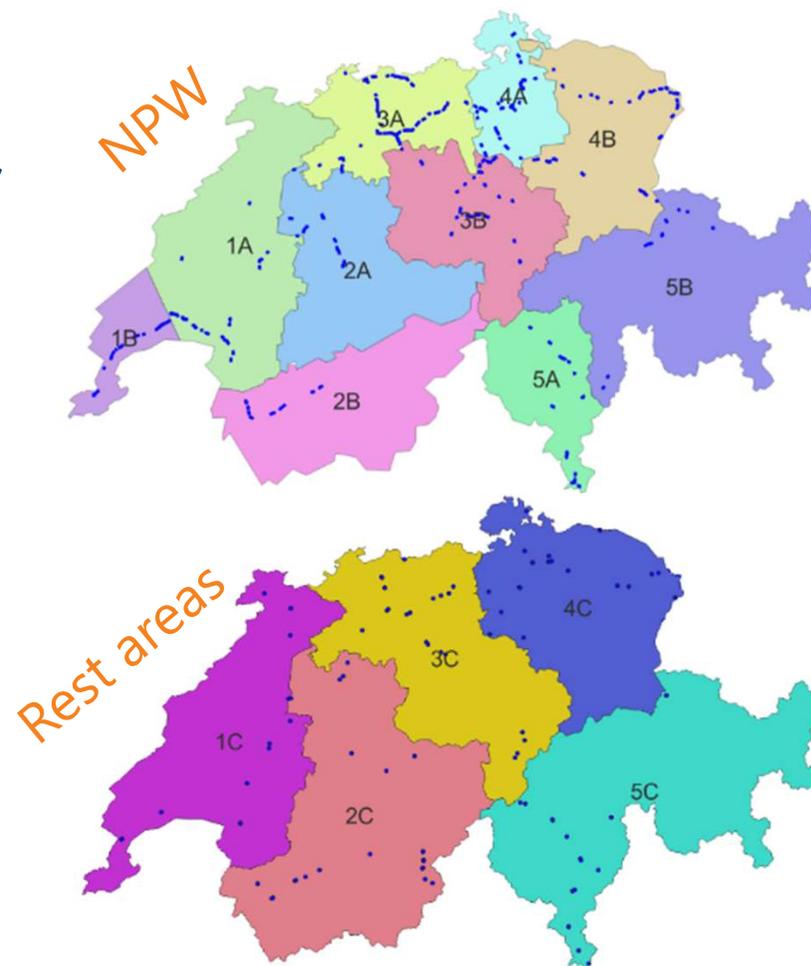
- Territory subdivision into 15 lots (10 noise protection walls, 5 rest areas)
- Competitive process and evaluation for each lots
- Custom made procedure for lots attributions



VIPV Project - Swiss Federal Roads Office (FEDRO)



- **Potential evaluation**
 - 350 noise protection walls: 113 GWh/year
 - 100 rest areas: 24.1 GWh/year (more proposed with full covering)
- **Results**
 - Noise protection walls: 18 files
 - Rest areas: 15 files
 - 14 attributions over 15 lots
 - 10 different winning companies



VIPV in Switzerland (Infrastructure IPV - IIPV)



Published examples

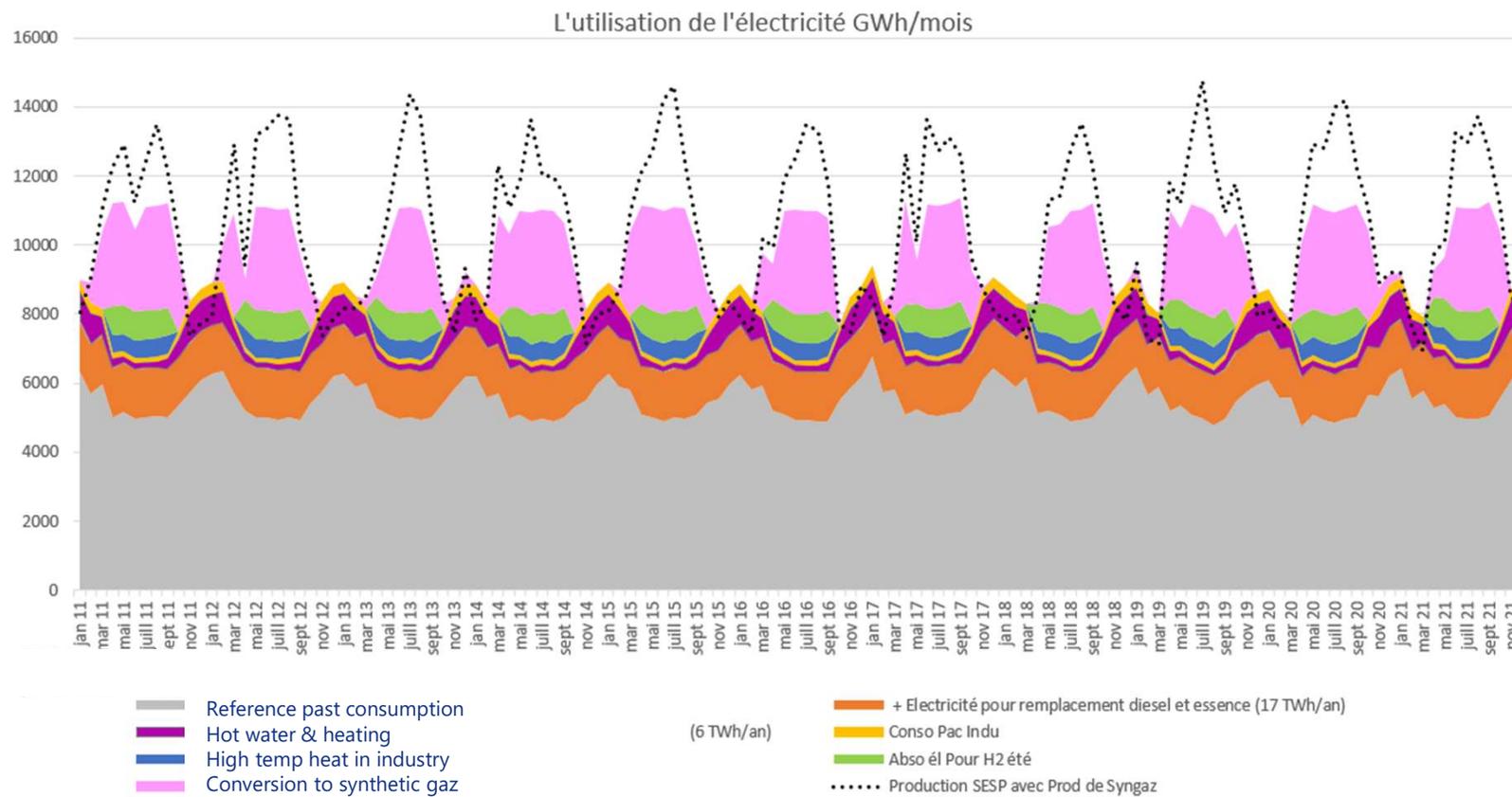
- [Helion](#)
- [Aventron and co.](#)
- [IWB + TNC](#)
- [Genedis](#)
- [LIMA Solar](#)
- [Consorzio Solar 120](#)
- [Rhienergie AG](#)



Solar PV in the 100% RES Power System



- More solar (72 GWp) to do synthetic gas in summer for industries

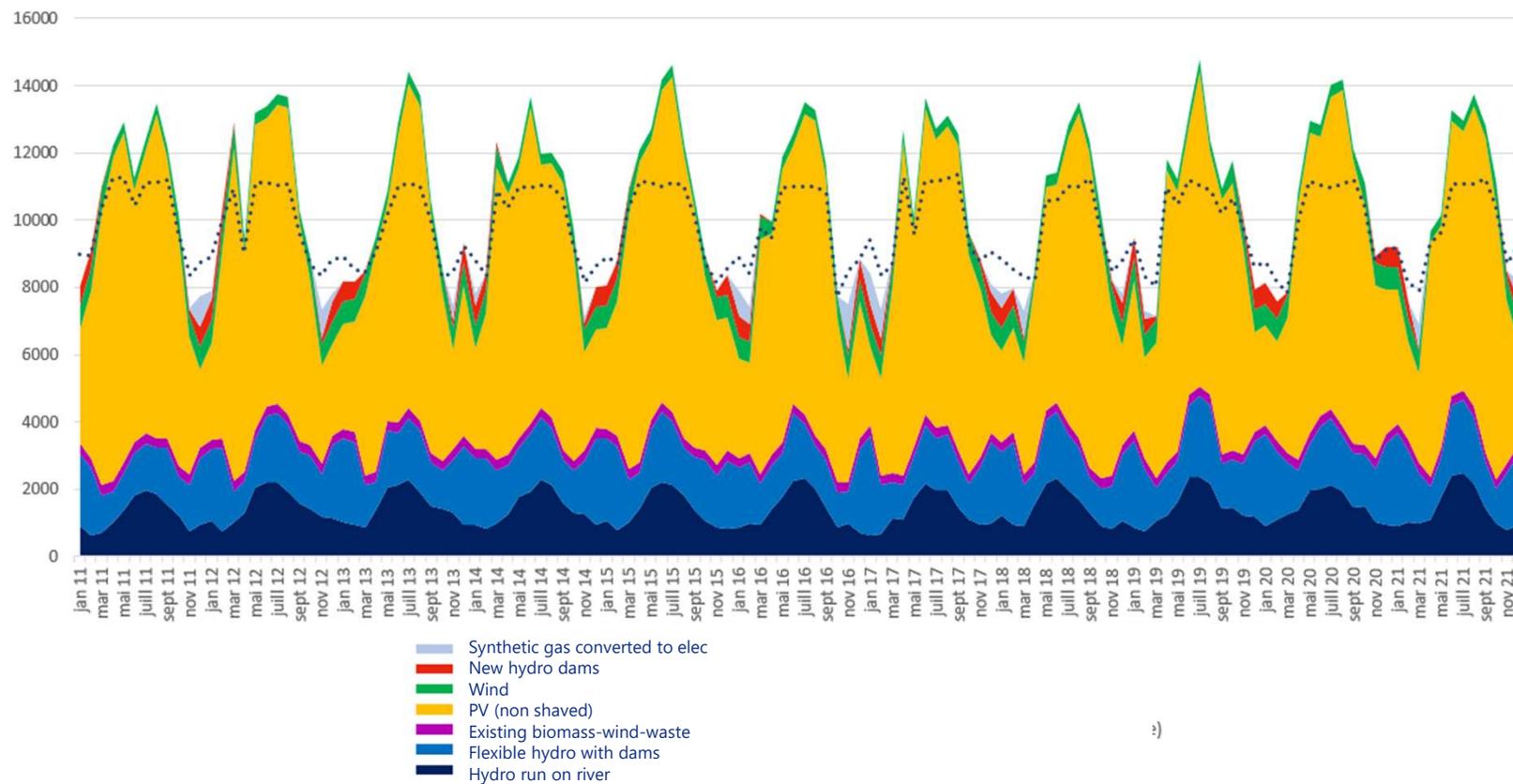


Solar PV in the 100% RES Power System



- More solar (72 GWp) to do synthetic gas in summer for industries

Production (monthly GWh)



www.iea-pvps.org

Lionel Perret, Swiss Task 1 representative
lionel.perret@planair.ch



Technology Collaboration Programme

by **iea**