

NEUTRINOS FOR EUROPE IN 2012 - NEU2012

Introduction – Meeting Organization

- ❑ Part I -Motivation for Neutrino Physics
- ❑ Part II - Getting the most out of existing facilities
- ❑ Part III - Road map to future facilities

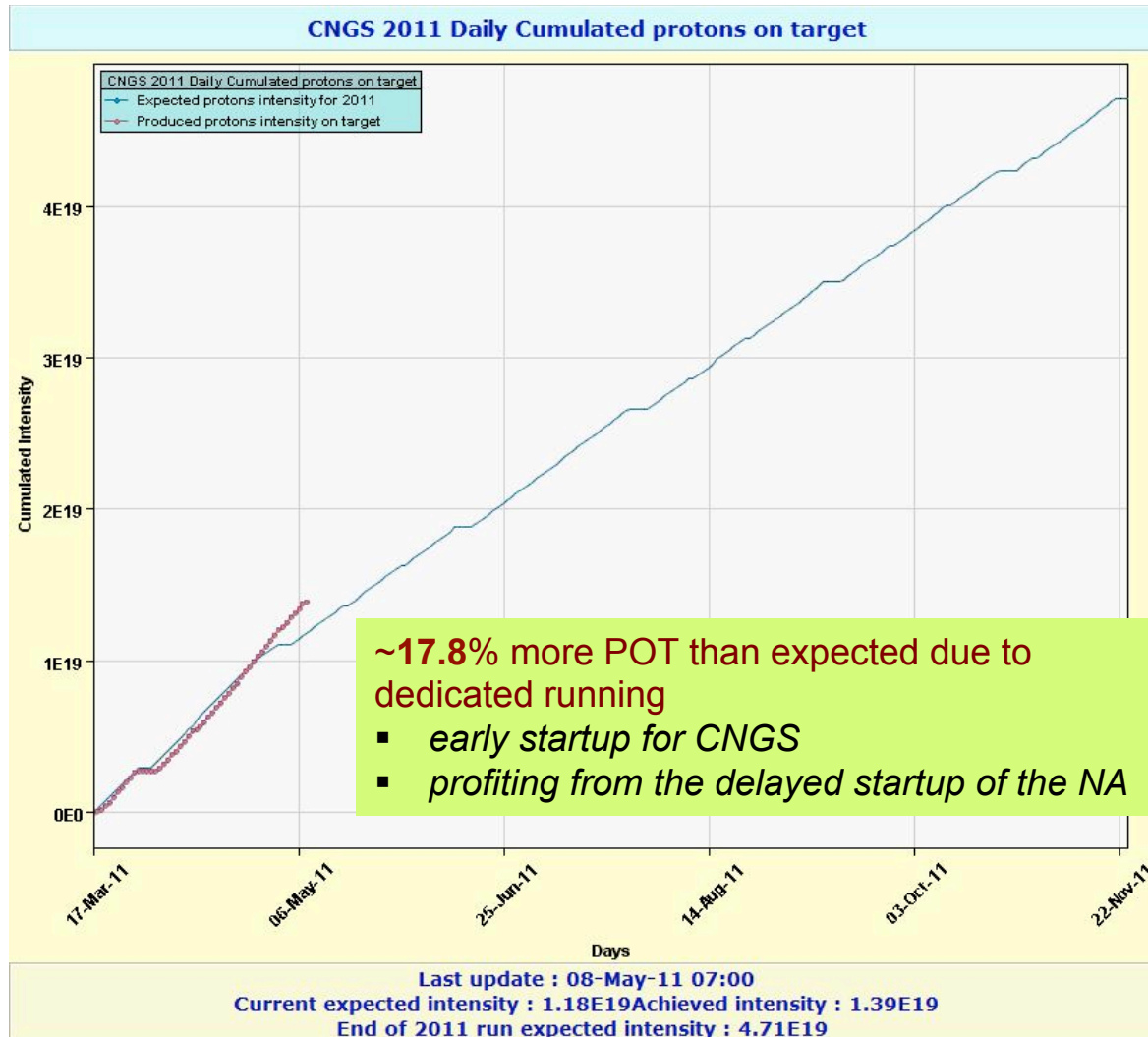
- ❑ Theme of the meeting : **Preparation for EU Strategy Discussions**

I. Efthymiopoulos – CERN

Neu2012 - Getting the most out of existing v-facilities

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CERN Neutrinos to Grand Sasso - CNGS

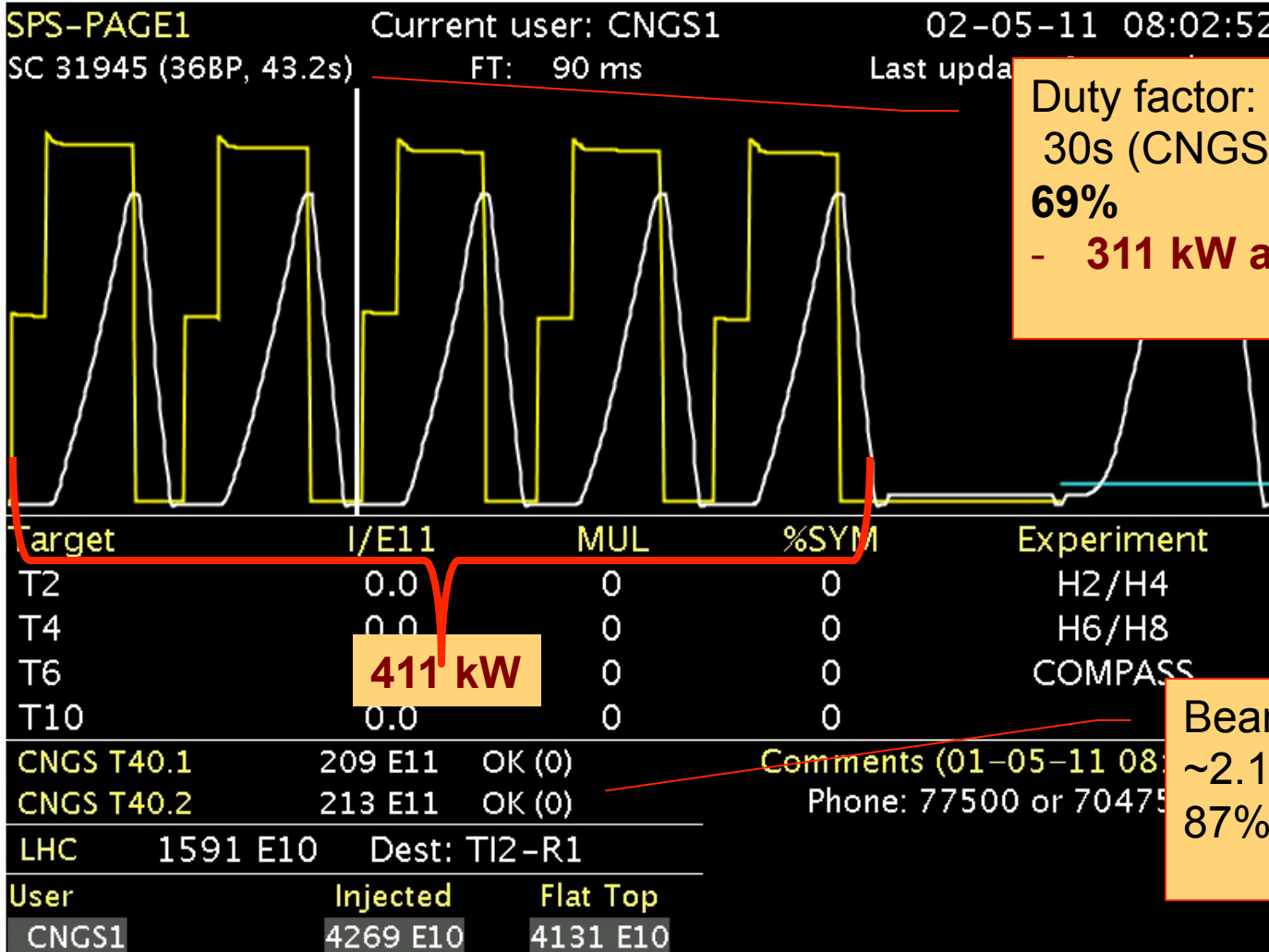


Year	POT
2008	1.78×10^{19}
2009	3.52×10^{19}
2010	3.48×10^{19}
2011	1.39×10^{19} (4.7×10^{19})
Total	10.17×10^{19} (13.48×10^{19})

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CERN Neutrinos to Grand Sasso - CNGS



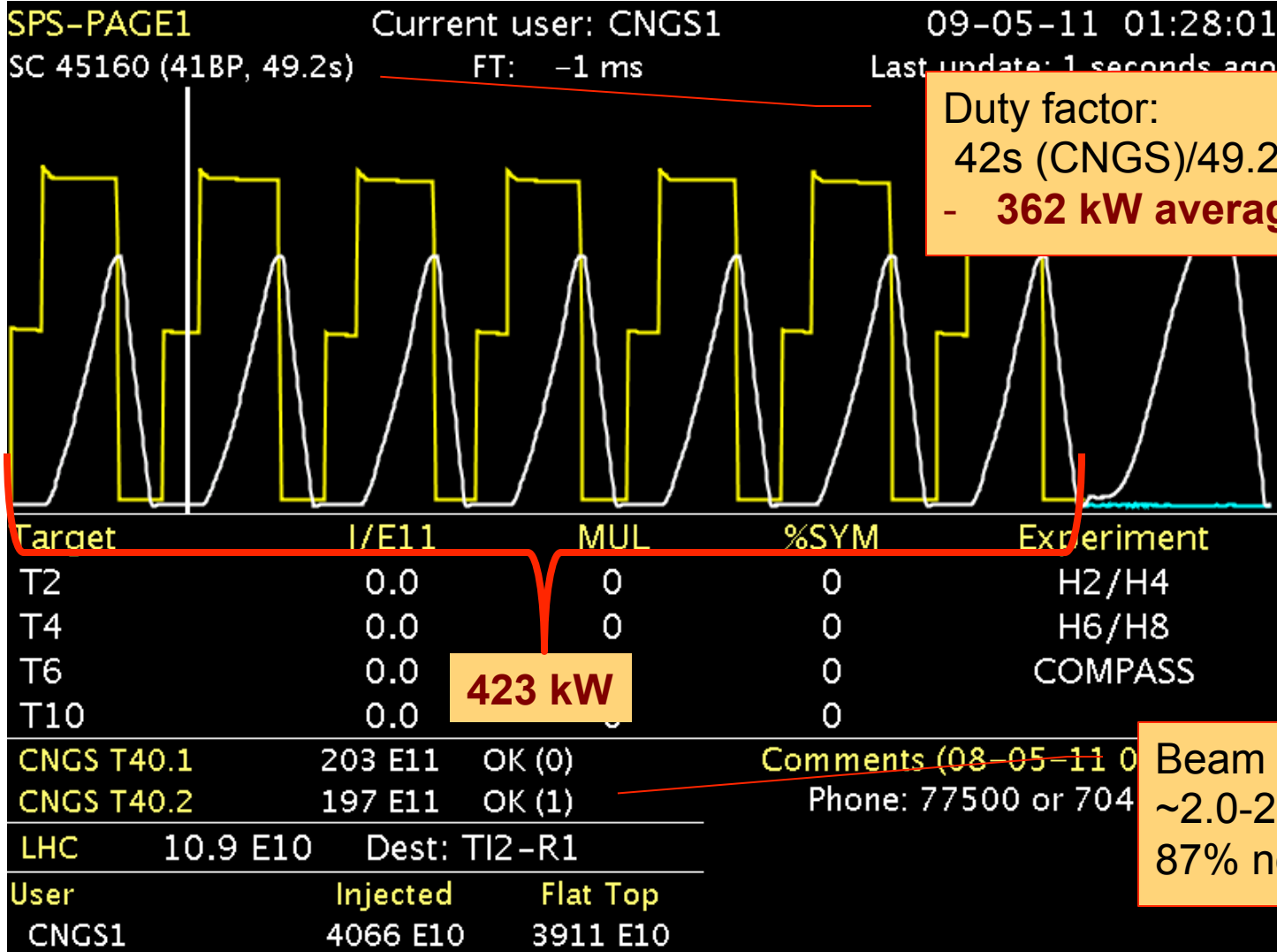
Duty factor:
 $30\text{s (CNGS)} / 43.2\text{s (total)} = 69\%$
 - **311 kW average power**

411 kW

Beam Intensity:
 $\sim 2.1\text{E}19$ pot/extr
 87% nominal

Neu2012 - Getting the most out of existing v-facilities

4 CERN Neutrinos to Grand Sasso - CNGS



Duty factor:
 42s (CNGS)/49.2s (total) = **85%**
 - **362 kW average power**

Beam Intensity:
 ~2.0-2.1E19 pot/extr
 87% nominal

- The CNGS facility is running extremely well for a third consecutive year

- CNGS OPERA and ICARUS will have a great year in 2011
 - ▣ Looking forward to more ν_τ events !!!

- Status and progress from the PS ν -beam and associated physics opportunities

- LAGUNA-LBNO proposal
 - ▣ DS approved; expected to start in **September 2011**
 - ▣ WP4: studies of possible beams from CERN to LAGUNA sites
 - Profit from CNGS beam experience and present/future SPS beams

Neu2012 – Road map to future facilities

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EU strategy for particle physics

- Discussions on the updated EU strategy for Particle Physics will start as expected in 2012
 - ▣ Kick-off meeting in EPS2011 @ Grenoble, end of July'11

The challenge for the community

- Present and defend the long baseline neutrino oscillation physics case as a competitive option in // to LHC and its upgrades
 - ▣ **Discovery goals** : θ_{13} (if not yet already known), δ , mass hierarchy **sign(Δm^2_{31})**
 - ▣ **Precision measurement**: θ_{23} etc., **also near detector programme**
- At the same time explain that the exact programme depends on measurement of θ_{13}
 - ▣ **presently several options cannot be excluded, but choices or revision of the strategy will be required later on**
- Present a coherent view of the possible neutrino projects
 - ▣ Profit from ongoing programs/studies: **CERN/LNGS, T2K, LAGUNA-LBNO, EUROnu, IDS-NF, MICE, ...**
 - ▣ **Discuss ν -physics options** [ν -source and near/far detectors] towards physics goals rather than competing programs
 - the (unknown) physics parameters and results from the ongoing DS will determine which options should be maintained and possibly build

Neu2012 – Road map to future facilities

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Ad-Hoc Steering Group (EUvSG)

- Discussions launched within a limited number of colleagues
 - Management of the ongoing DS and R&D projects

- This meeting the first opportunity for a wider discussion with the community

- **Strategy:**
 - Develop a consensus on a **coherent, staged long-baseline neutrino oscillation programme in Europe:**
 - Medium term oscillation experiments, development of accelerator and detector facilities and R&D for future projects
 - Experimental facilities in Europe and European contributions to long-baseline facilities overseas

- **Opportunity:**
 - Endorsement of the programme via the European Strategy update

- **Propose:**
 - **Ad hoc steering group (EUvSG) to work towards a town meeting in the period December 2011 to February 2012 at which consensus programme would be discussed**