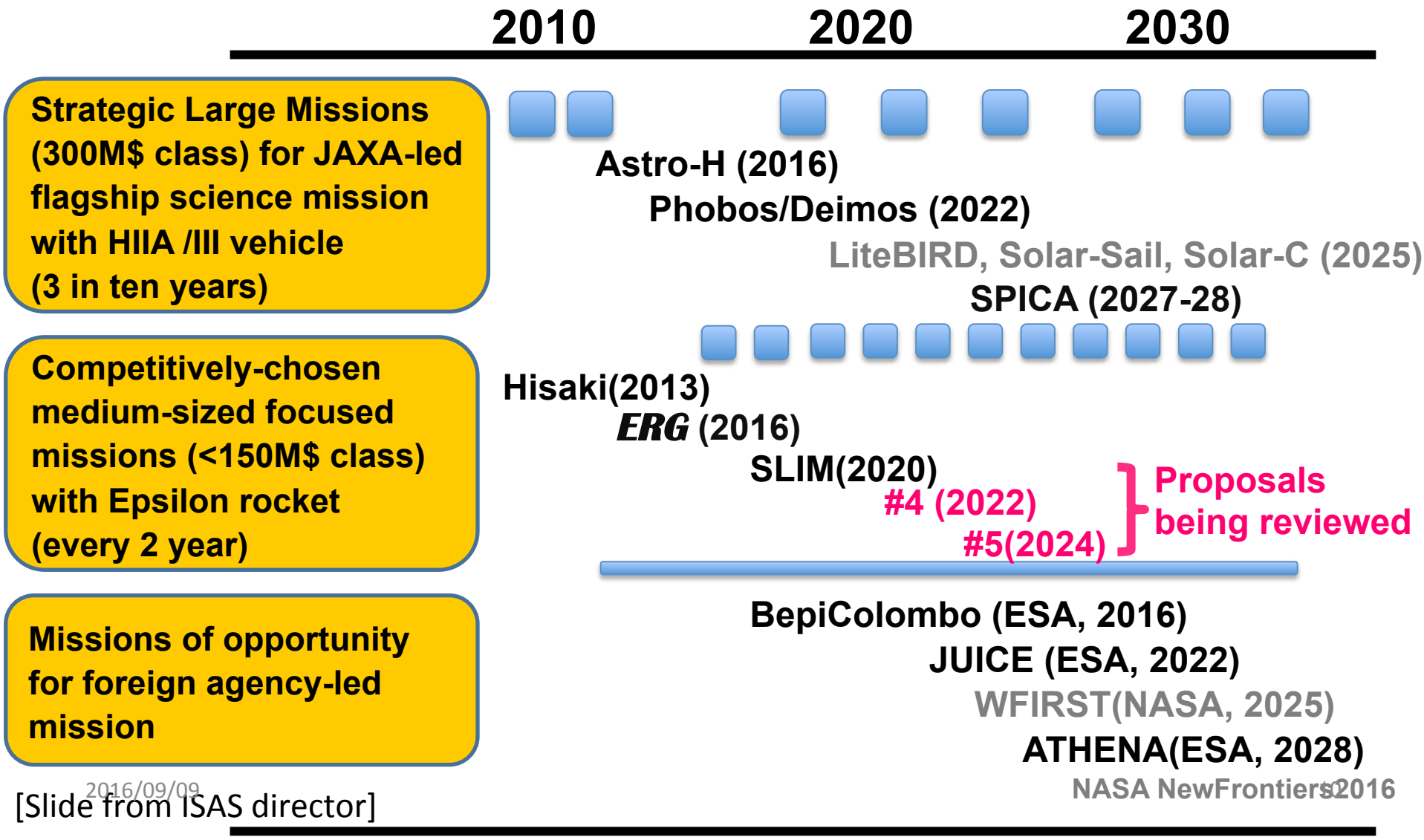
Need a range of mission options to maximize launch potential

- JAXA has two launchers (H-IIA/III and Epsilon) that can potentially support a range of small and medium missions.
- The JAXA launch schedule for a big mission like the original Solar-C (to be launched by H-III) is crowded for the next 15 years; for this reason the team should produce a range of missions in order to maximize launch potential.

Space Policy Commission under cabinet office intends to guarantee predetermined ***steady annual budget*** for space science and exploration to maintain its scientific activities



[Slide from ISAS director]

[Slide from ISAS director]

Strategic *L-class* missions with HIIA/HIII

#4 ESA-Led SPICA

FY2027-28

Large-size #3
Under selection
LiteBIRD, Solar-Sail,
(Solar-C)

FY2025

#2 Martian Moons eXplorer (MMX)

FY2022

#1 ASTRO-H (*Hitomi*)

FY2016

Strategic Large Missions (300M$ class) for JAXA-led flagship science mission with HIIA/H3 vehicle (3 in ten years)

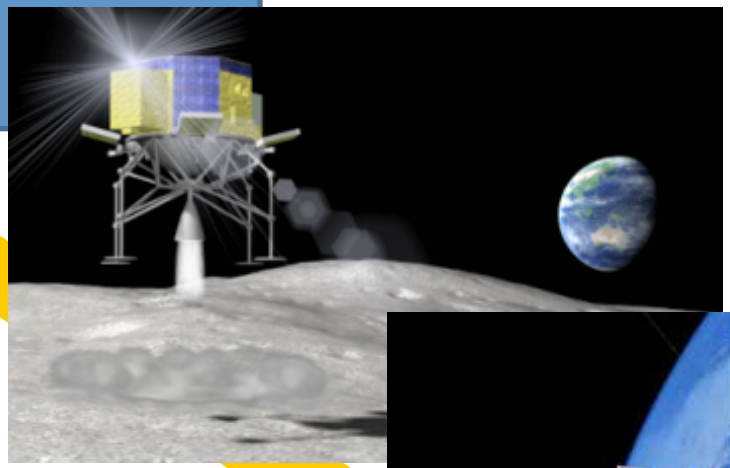
[Slide from ISAS director]

Competitive *M-class* missions with Epsilon

Medium-size #4
Under selection

FY2021

#3 Moon landing (SLIM)



FY2019

#2 van Allen belt (ERG)

FY2016

#1 *Hisaki* (UV planet)

Competitively-chosen medium-sized focused missions (<150M$ class) with Epsilon rocket (every 2 year)

FY2013

Solar physics mission(s) in mid. 2020s

- Solar-C for strategic L-class #2 (~2025) is still the first priority in the Japanese solar physics community.
  - The competition will be tough in the 2025 slot.
  - If Solar-C is not selected, it will be shifted to beyond 2030.
- Japan should have at least one solar physics mission in hand in 2020's.
- Shifting to "Competitive M-class missions with Epsilon" may increase the launch potential.
  - We need to have good candidates, if we shift.

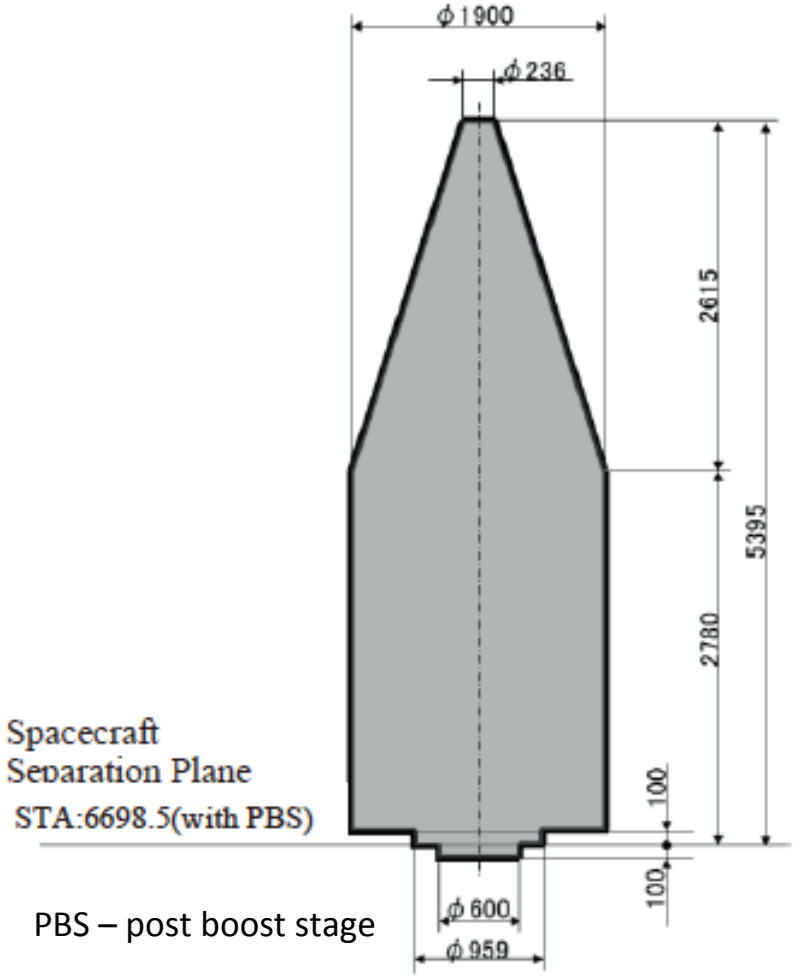
JAXA Solar-C WG: Internal study groups

- The following study groups have been formed in June 2016.
  - Mid.-size visible-light telescope plan
  - UV spectro-polarimetry, after CLASP-2 sounding rocket (2019?)
  - EUVST; high-throughput UV-EUV spectroscopy, evolving from a Solar-C payload
  - (HCT; high-spatial resolution coronal imager, evolving from an optional Solar-C payload)
  - Photon-counting X-ray telescope, after FOXSI-3 sounding rocket (2018)

Epsilon payload

Nakaya et al. 2015, ISTS

"Payload Interface Information and Interface coordinating activities of Enhanced Epsilon Launch Vehicle"
http://archive.ists.or.jp/upload_pdf/2015-g-17.pdf



PBS – post boost stage

Fig. 4. Payload Usable Volume

- PBS is used for accurately installing sun-synchronous orbit (SSO)
- Weight
  - 590 kg for SSO 500km
    (~450 kg for 600km)

Solar-C meeting today

- Phase 1: Review Solar-C science objectives and produce revised set of science goals. [NOW]

- Topics I - Atmospheric heating and solar wind
  Tarbell, Raymond, Ichimoto (leader), Shimizu, Carlsson, Bellot Rubio,
- Topics II - flares, CME, and space weather
  McKenzie, Kusano (leader), Shimizu, Fletcher
- Topics III - Solar cycle and space climate
  Gibson, Hara (leader), Kusano, Solanki