KUALA LUMPUR 2012 WORLD GAS CONFERENCE

IGU

25th world gas conference

"Gas: Sustaining Future Global Growth"

The use of biogas from swine manure as a preliminary agent of a biogas pipeline project development

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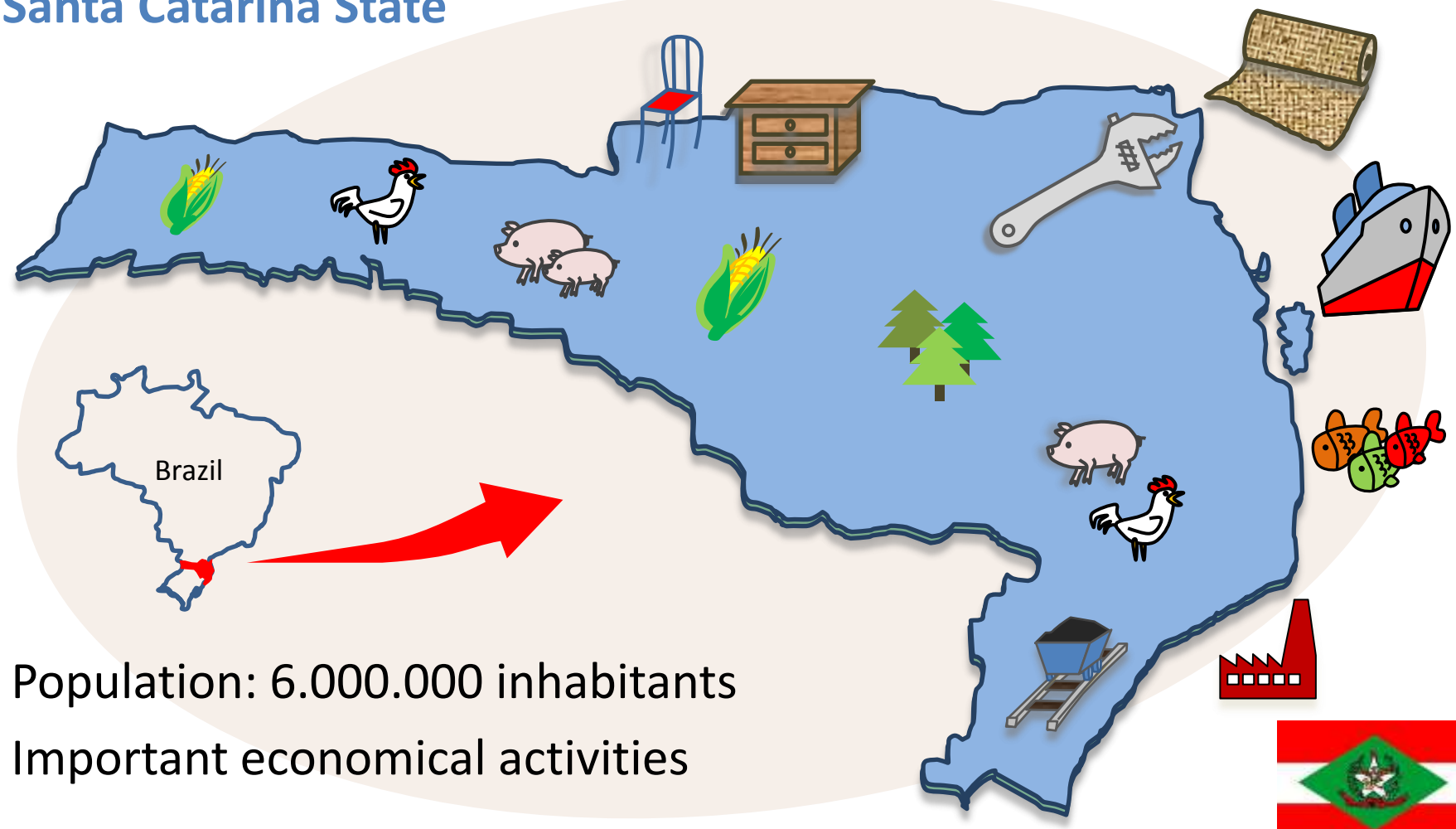
Introduction

Santa Catarina State



- Population: 6.000.000 inhabitants
- Important economical activities

Santa Catarina Swine Breeding

Production Data:

- Largest swine producer in Brazil;
- Corresponds to 7.5% of state GDP;

Environmental Impact:

- High number of animals/area (287 animal/km^2);
- Water table pollution;
- Soil conditioning overload;
- Green house gases emissions (Methane-CH_4).

Biogas Project Aims

- Use the biogas to improve pipelines construction feasibility;
- Spread the natural gas distribution networks;
- Contribute to the sustainable development of the state;
- Reduce production costs and improve swine farmers incomes.

Biogas Characteristics

Production:

- It's produced by organic matter degradation

Gross Composition:

- Methane (CH4): 50 – 70%
- Carbon Dioxide (CO2): 25 – 50%
- Other compounds (Hydrogen, Hydrogen Sulfide, Oxygen, Ammonia, Nitrogen and Water)

Gross Biogas Heating value:

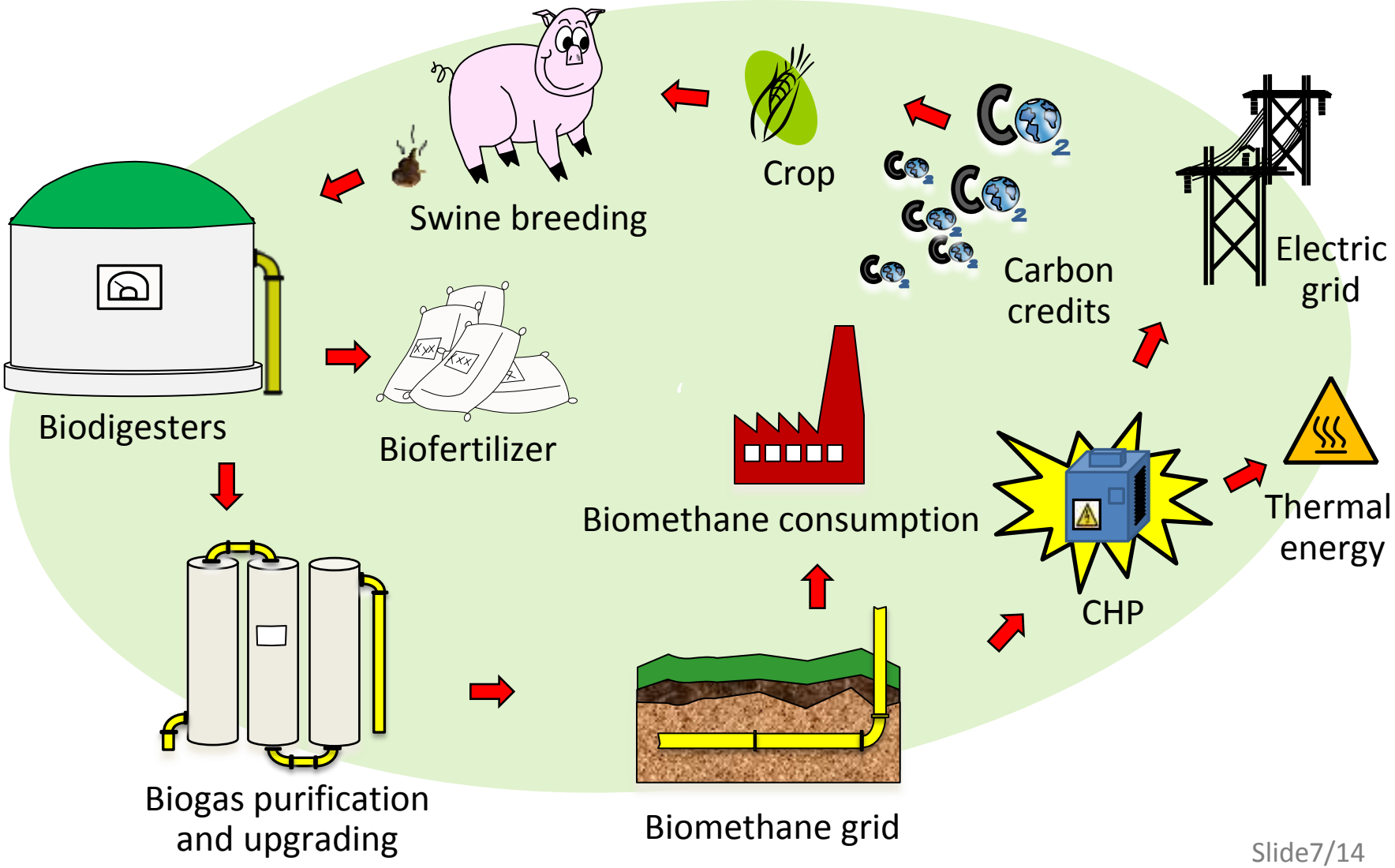
- 5,500 kcal/m^3 (21,800 BTU/m^3)

Biogas Technology Production

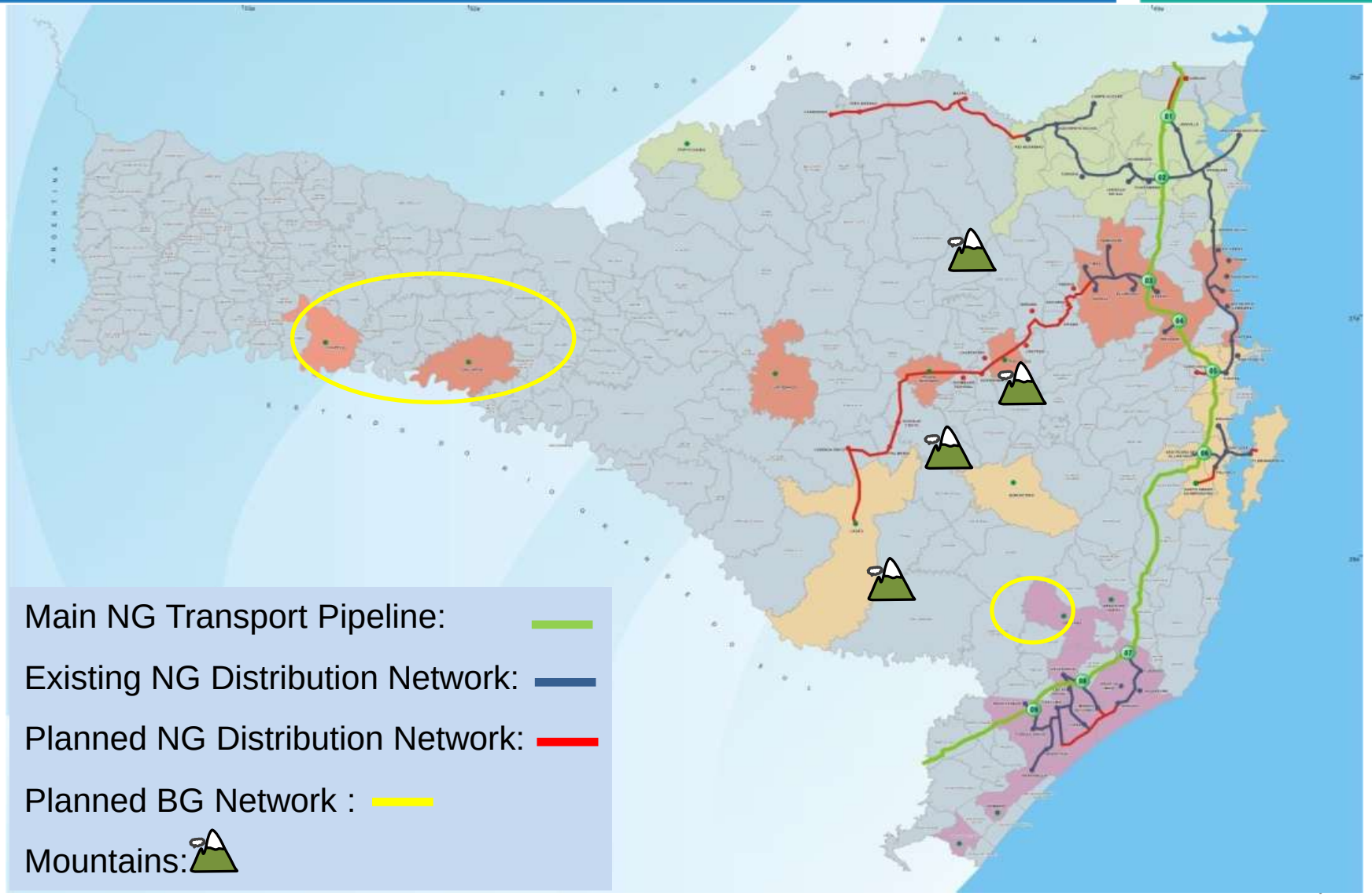
Current method : Covered lagoons

Planned technology: biodigesters with pH, temperature and mixing control

Biogas Chain



Santa Catarina State Gas Pipeline



Natural Gas Pipeline Construction to Distant Regions

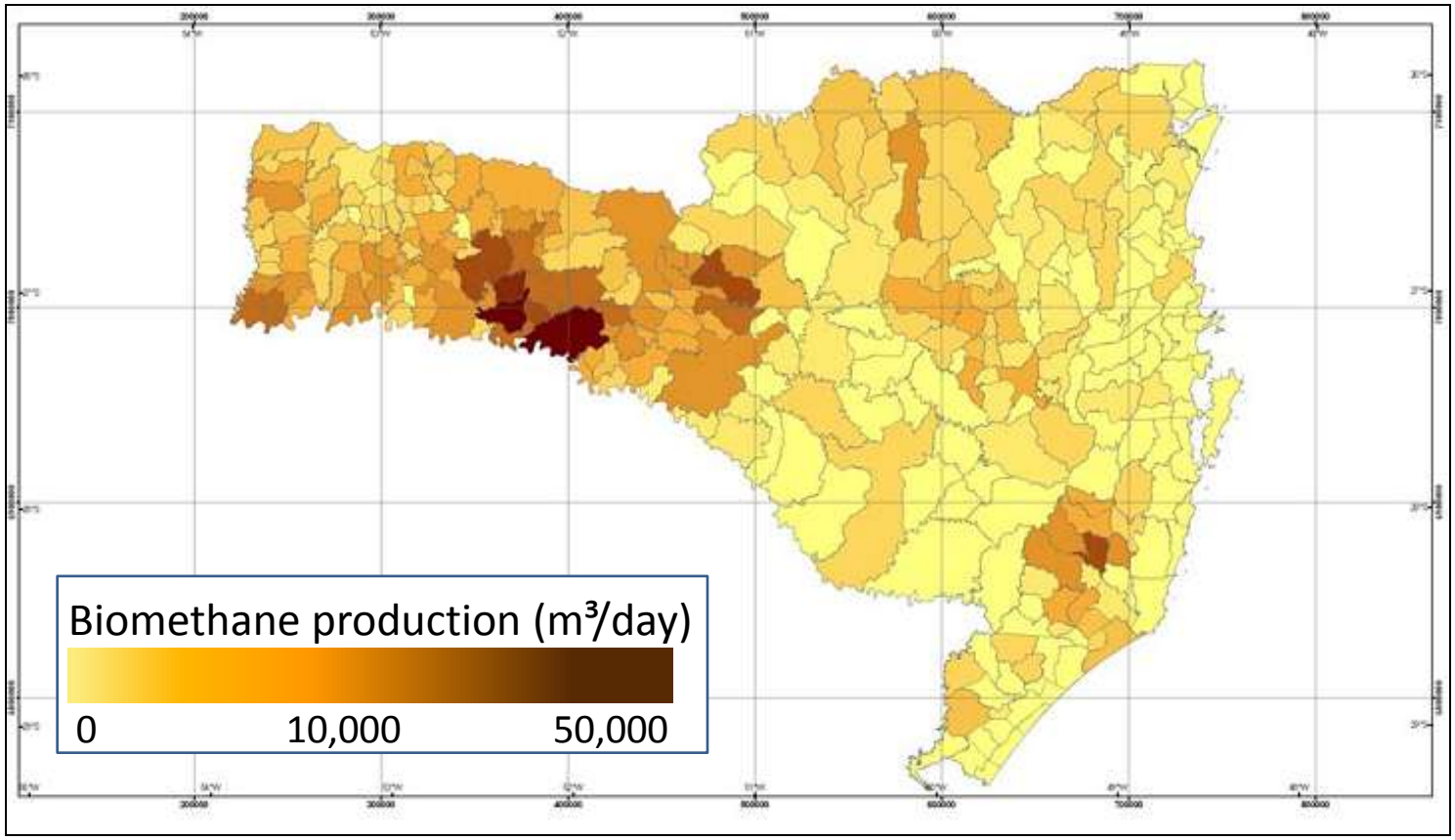
Low feasibility due to:

- Long distances (500 km);
- Mountainous landscape;
- Low NG consumption (firewood as energy);
- High costs (high pressure pipelines)

Alternative biogas pipelines:

- They are close to costumers (local production and consumption);
- Short distances (low costs);

Biomethane Inventory



Number of animals: 6.000.000 (UFSC, 2008)

Total biomethane volume (CH_4): 900,000 m³/day

Challenges

- Paradox: Biogas Production vs. Significant Gas Consumption;
- Biomethane distribution model: NG Pipelines construction or Biomethane Micro Networks;
- Low costs technologies development;
- Biomethane costs are 20% higher than natural gas.

Actions to Help the Biogas Project Feasibility

- Use the biomethane compressed/liquefied model as an alternative;
- Get support of government to reduces tax and fees (biogas chain);
- Sell the biomethane as a premium product;
- Mix the biomethane costs in the total costs of natural gas trading;

Conclusion

Social and environmental benefits:

- Correct waste disposal;
- Best conditions of handling and breeding;
- Breeding increasing;
- Carbon credits incoming;
- Renewable energy production.

Gas distribution company benefits:

- Anticipation of fuel gas supplying to remote areas;
- Development of new fuel gas sources.

Thank you, very much.

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