The European Commission's
science and knowledge service

Joint Research Centre

Integration of the Western Balkans in the JRC Energy System Models and datasets.

9th South East Europe Energy Dialogue
Thessaloniki, June 29-30, 2016

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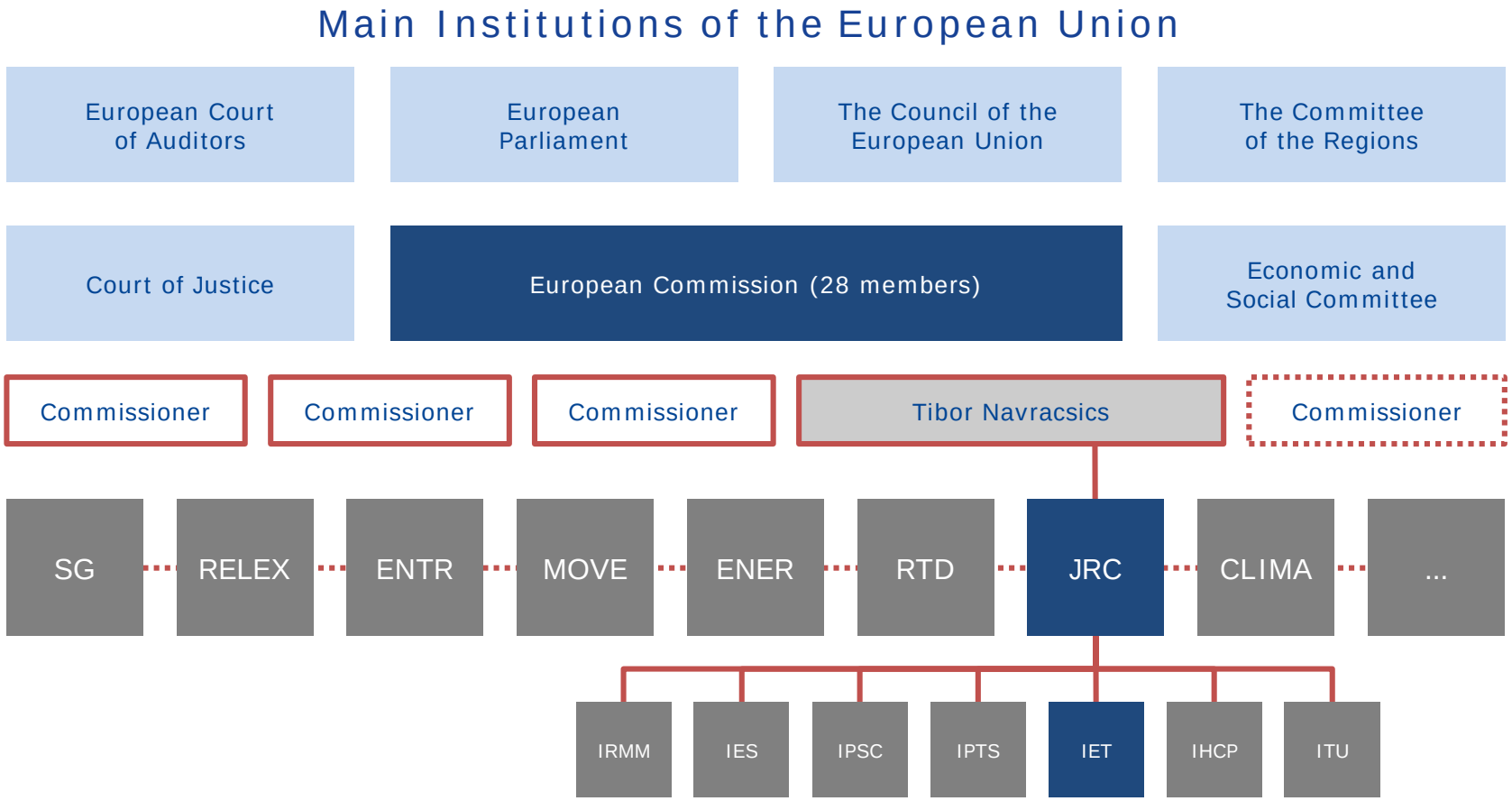
European Commission

Content

- Role of the JRC in the EU Commission
- Energy Research at the JRC
- Modelling
- Activities for Enlargement and Integration

The JRC is a Directorate General of the European Commission



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The Joint Research Centre is located on 5 sites (plus the Brussels headquarter)

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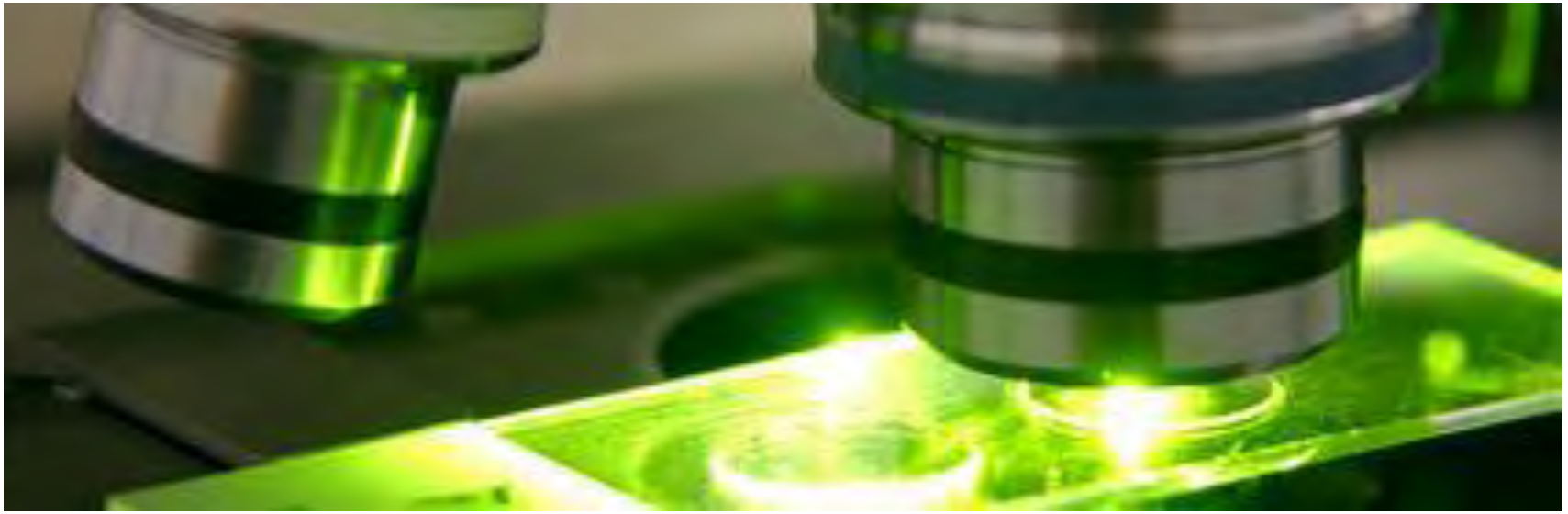
The JRC provides science based input for EU legislation and standardisation

The Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.



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The JRC provides concrete policy advice to a number of DGs

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JRC research activities on energy sector

- Renewable energy
- Sustainable and safe nuclear energy
- Energy security, system and markets
- Energy technologies modelling and assessment
- Alternative fuels
- Hydrogen and fuel cells
- Sustainable transport
- Energy efficiency

European Commission

JRC is supporting the Energy Union with the SET Plan Information System (SETIS)

Energy Union R&I priorities and Integrated SET Plan actions

N°1 in Renewables	1. Performant renewable technologies integrated in the system 2. Reduce costs of technologies
Smart EU Energy System with consumer at the centre	3. New technologies & services for consumers 4. Resilience & security of energy system
Efficient Energy Systems	5. New materials & technologies for buildings 6. Energy efficiency for industry
Sustainable Transport	7. Competitive in global battery sector (e-mobility) 8. Renewable fuels
CCS/CCU	9. CCS/CCU
Nuclear Safety	10. Nuclear Safety

SETIS
Information For Decision-making

http://setis.ec.europa.eu

- Monitoring and reporting on the progress of SET Plan implementation
- Data analysis for annual State of the Energy Union Reports on three indicators
  - Level of R&I investment
  - Trend in patents
  - Researchers active in the energy sector

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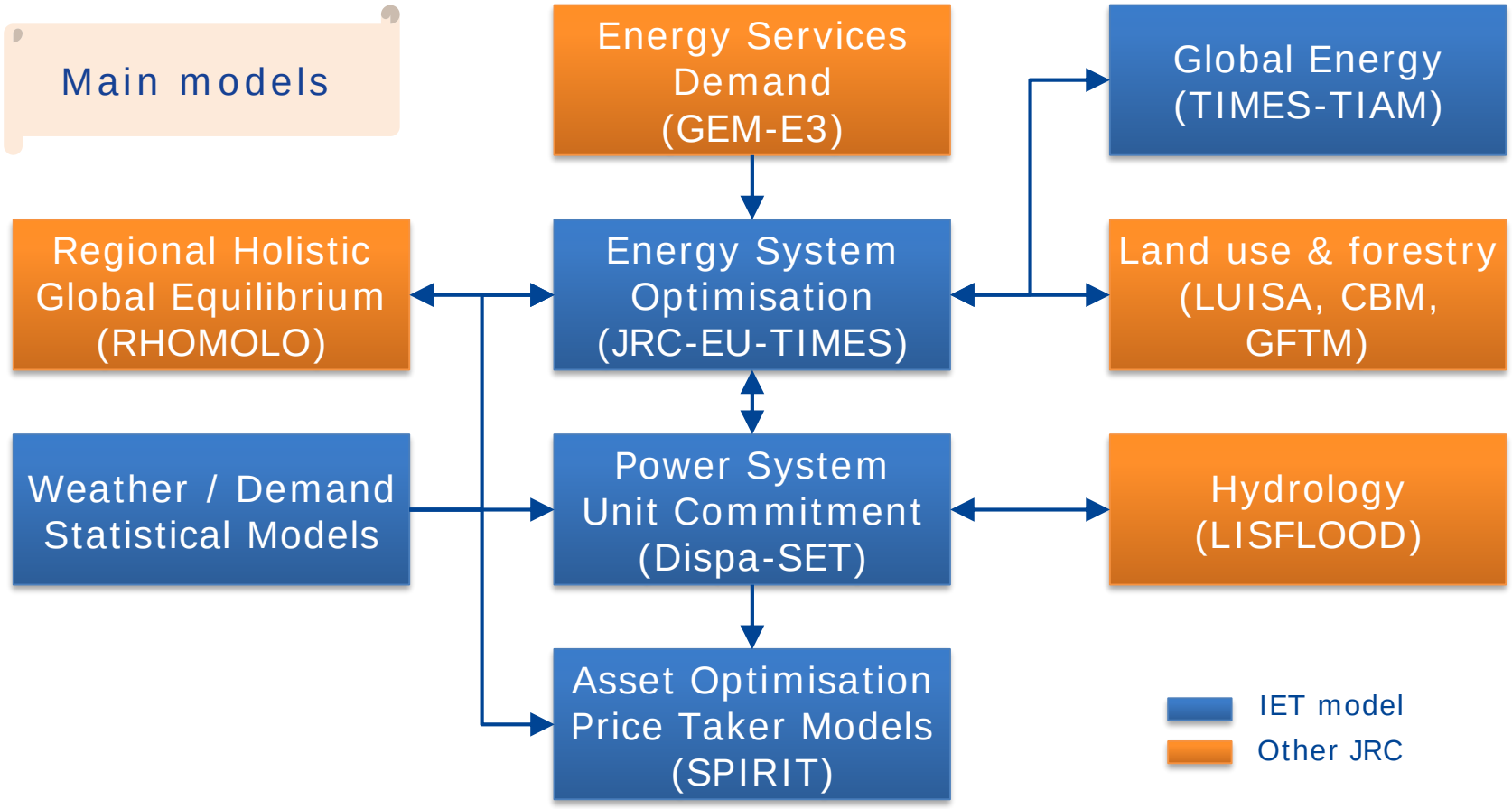
The JRC develops models for the energy system and interlinked sectors



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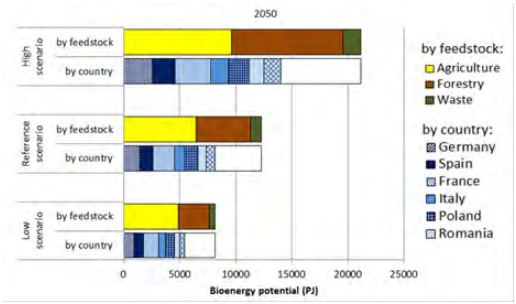
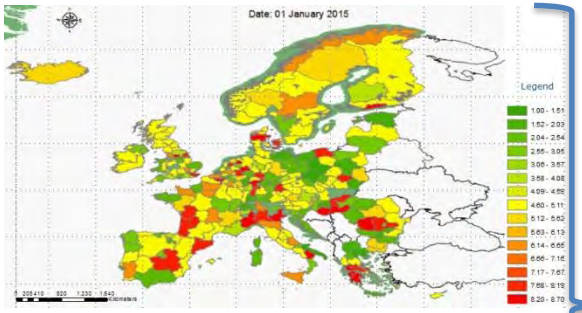
The JRC develops open datasets allowing transparent assessments

JRC datasets:

RES-E potentials
Potentials and cost curves for biomass, solar and wind energy at NUTS 2 level



JRC EMHIRES
meteorologically derived wind and PV hourly generation time series at NUTS 2 level



JRC EPPD
Full set of technical power plant data (MW, efficiencies, ramps…)

Typical applications

- Long term energy system studies
- Energy system transitions
- RES-E integration
- Generation adequacy
- Power system flexibility and storage needs
- Power market design
- Network expansion
- …

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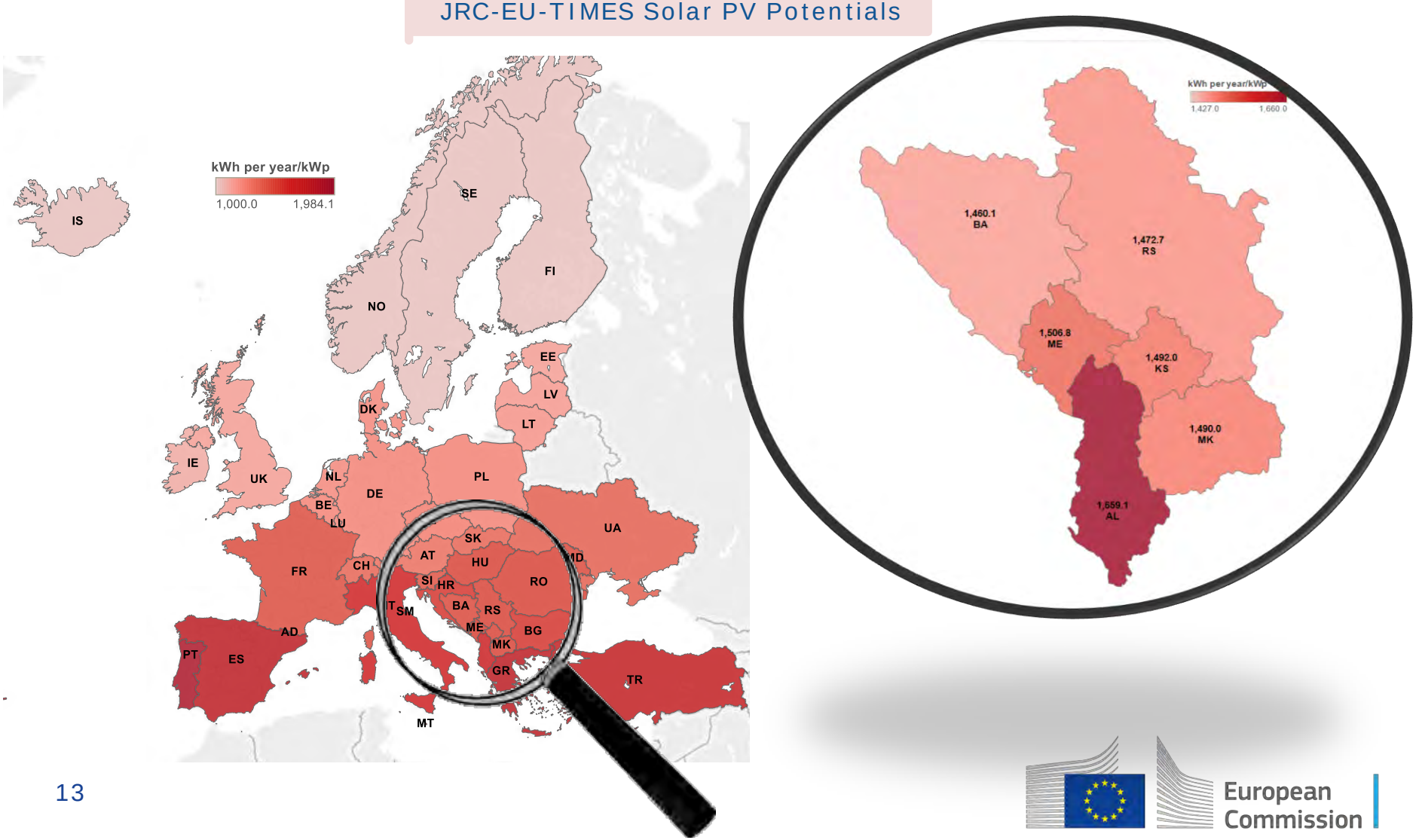
JRC puts the Western Balkans in the European renewable potentials maps.

JRC-EU-TIMES Solar PV Potentials



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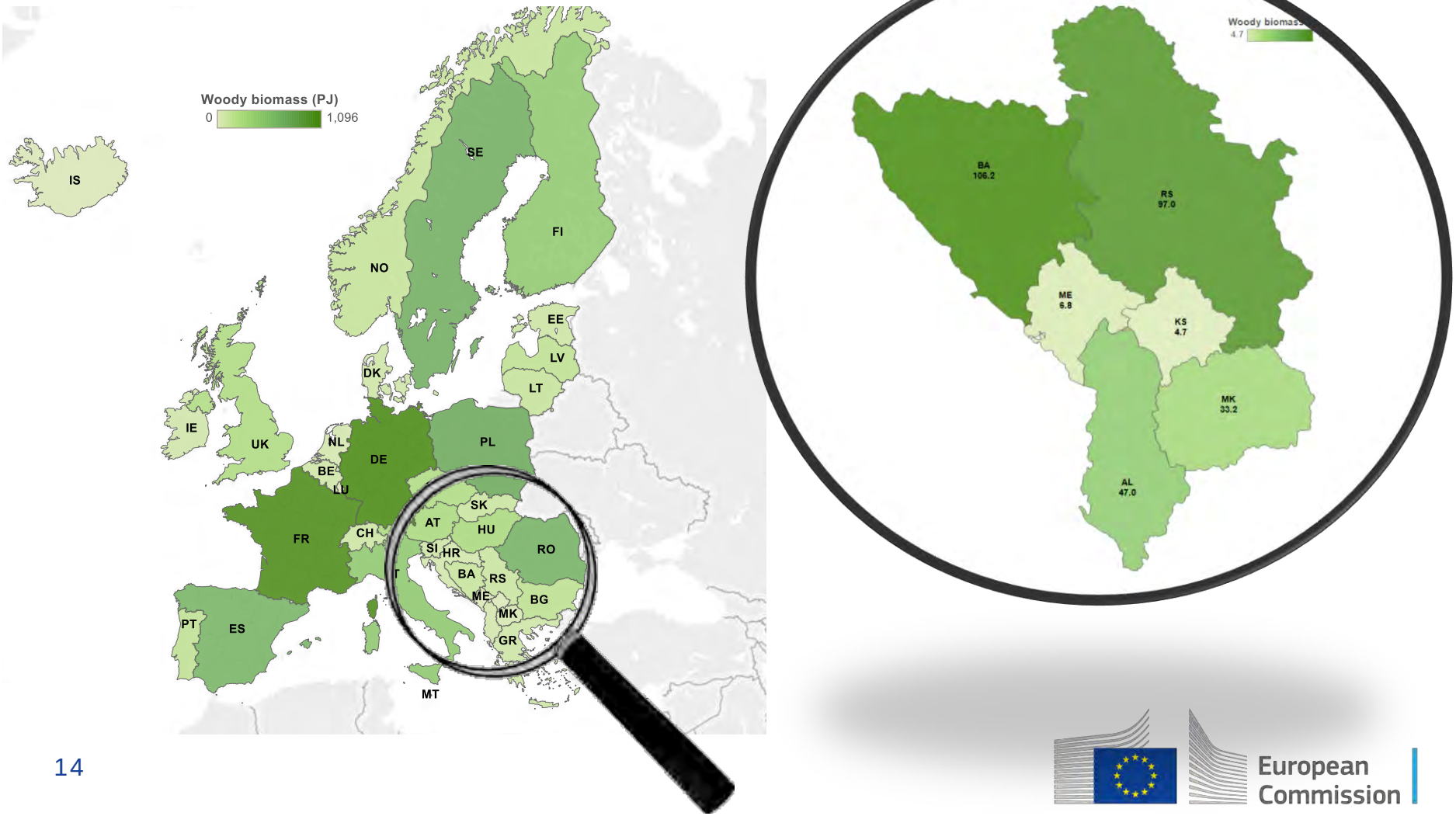
JRC puts the Western Balkans in the European renewable potentials maps.

JRC-EU-TIMES wood biomass Potentials



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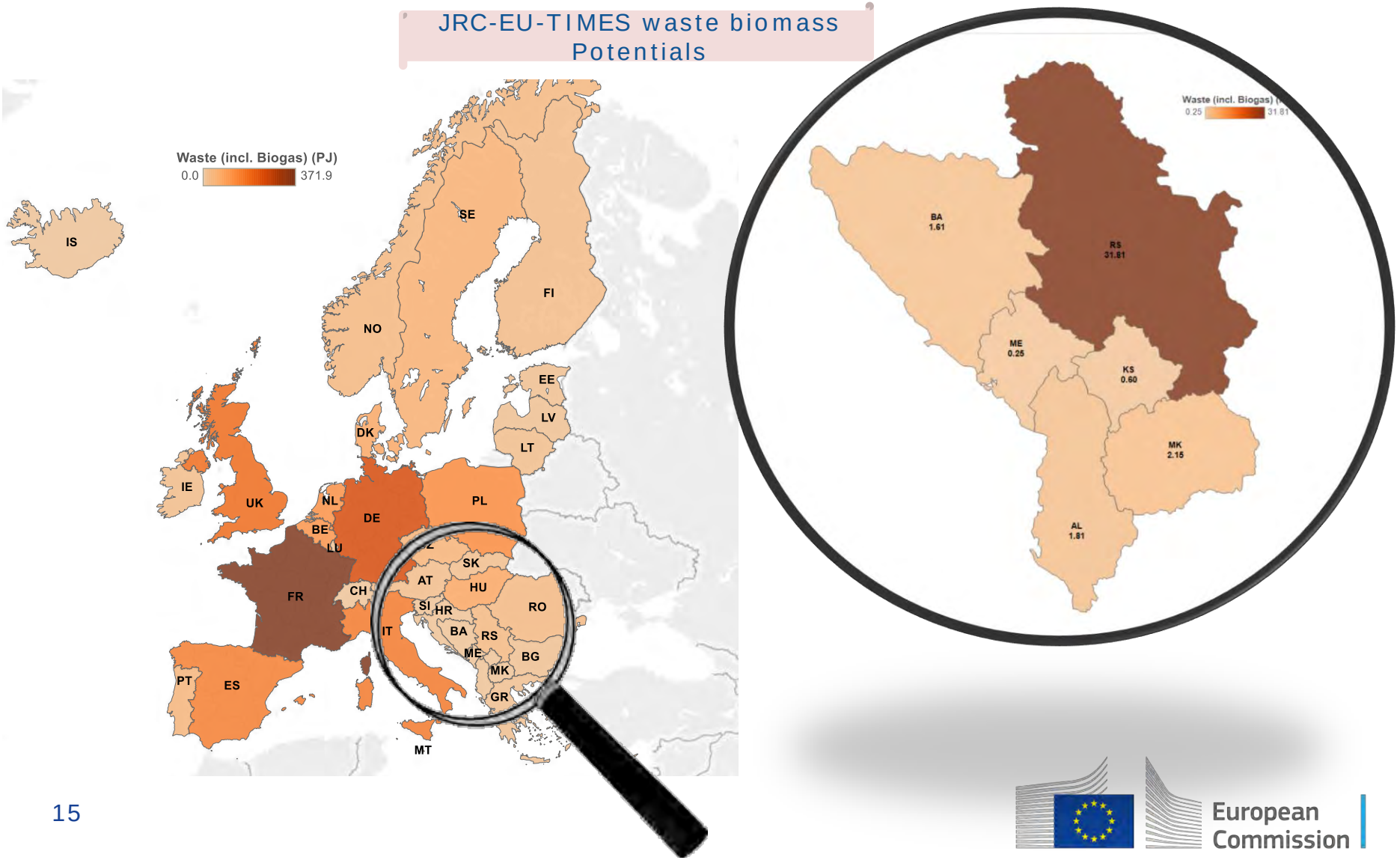
JRC puts the Western Balkans in the European renewable potentials maps.

JRC-EU-TIMES waste biomass Potentials



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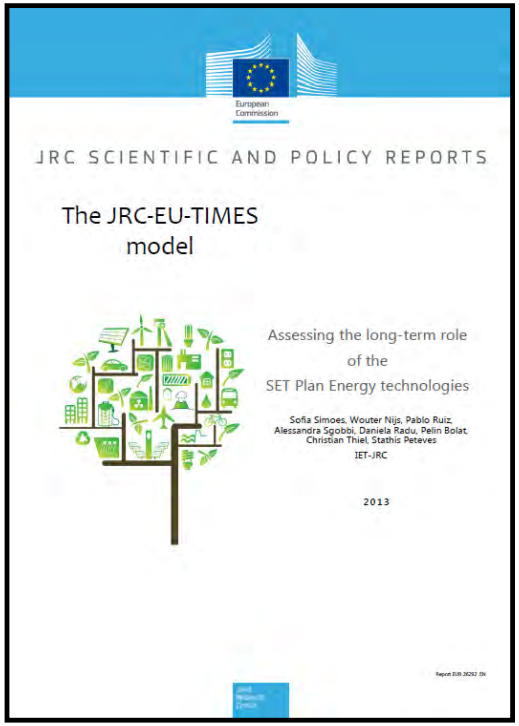
JRC-EU-TIMES in a nutshell

- Technology rich (300+) bottom-up energy system optimisation (partial equilibrium) model based on the TIMES model generator of the IEA
- Designed for analysing the role of energy technologies and their innovation for meeting Europe's energy and climate change related policy objectives
- Model fully owned and operated by the JRC
- Model validation with Commission Services and external modelling experts

Available at:
http://publications.jrc.ec.europa.eu/repository/handle/111111111/30469



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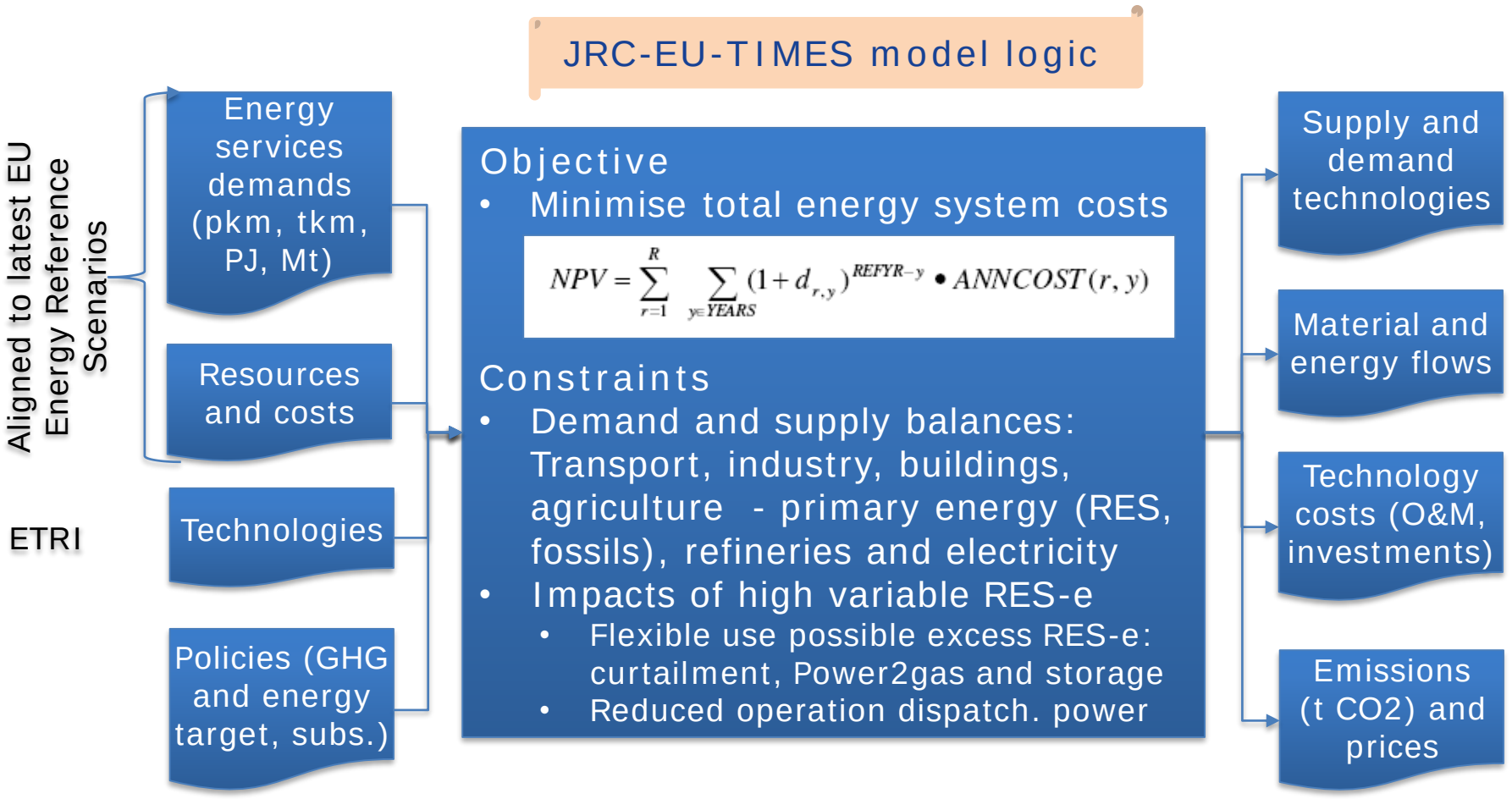
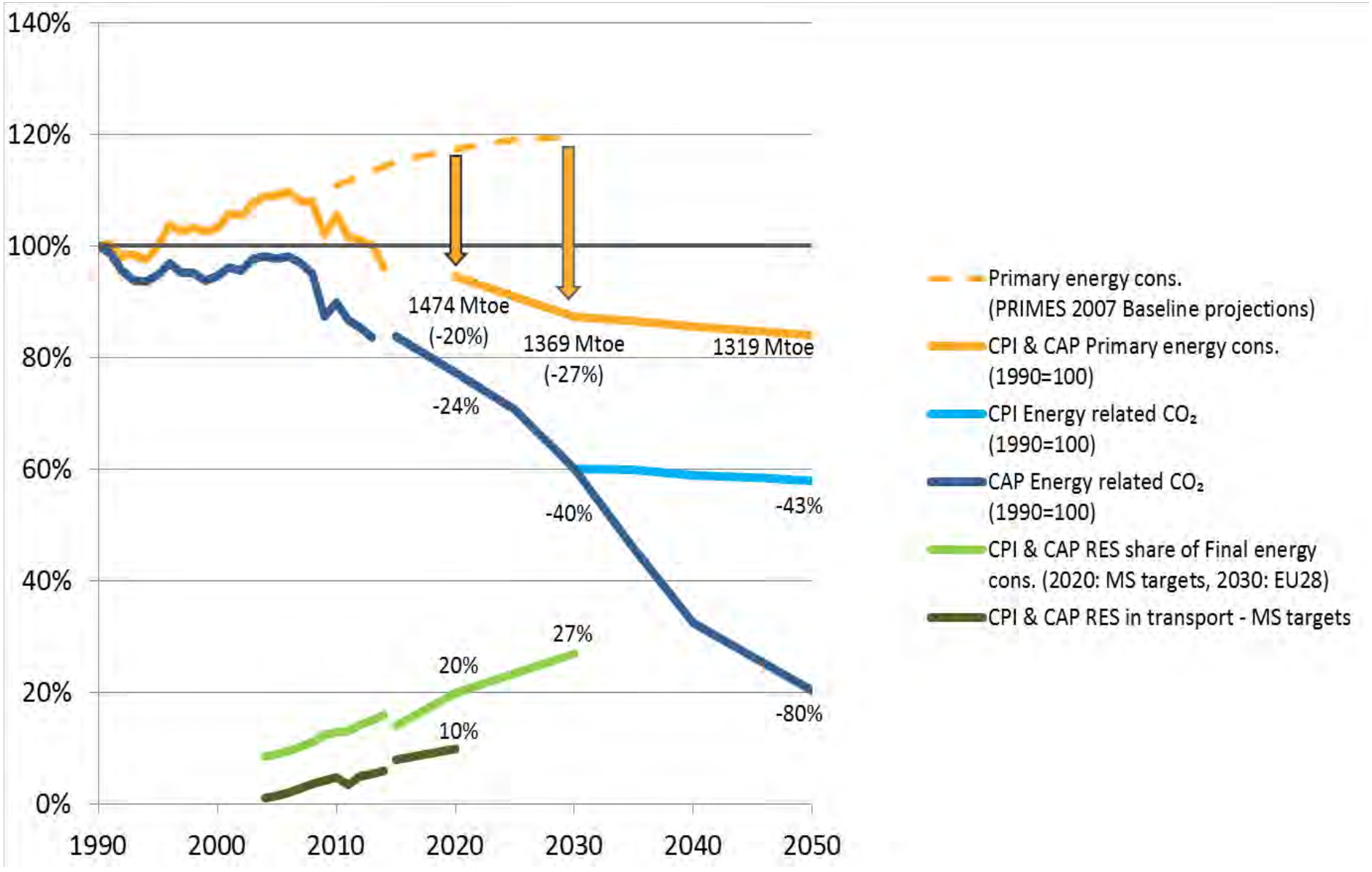
JRC-EU-TIMES is an energy system model for the EU28, CH, IS, NO & Balkans



JRC-EU-TIMES applications and results



JRC EU TIMES model now includes the Western Balkans

- Albania (AL)
- Bosnia Herzegovina (BA)
- F. Y. R. O. Macedonia (MK)
- Montenegro (ME)
- Serbia (RS)
- Kosovo (KS)

- Also now adding:
- Turkey (TK)
- Ukraine (UA)
- Moldova (MD)

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The Joint Research Centre is supporting the Enlargement process

The JRC is playing an important role in providing scientific and technological support for the European Union Enlargement and Integration Process.

In line with its mission, the JRC has been running since 1999 the Initiative Enlargement and Integration Action.

The objective of the E&I Action is to support the transposition of "A*cquis Communautaire"* to national legislation of the E&I countries.

JRC Instruments and Actions (indicative)

Scientific Support to the Danube Strategy
Seven flagship cluster (water, land, soil, bio-energy, air, data
e exchange and harmonisation, smart specialisation, innovation and technology transfer - NEW: Stairway to Excellence

Scientific Support to
the Adriatic-Ionian Strategy
JRC potential contribution:
best practice and lessons learnt

Danube Inco.Net FP7 funded coordination and support action for the official EU Strategy for the Danube Region (EUSDR) in the field of research and innovation (R&I).

Memoranda of Understanding
Serbia – Ministry of Education, Science and Technological Development
TUBITAK - Turkey
The former Yugoslav Republic of Macedonia

European Commission

Tirana and Vienna events

E&I Workshops:

Power Storage in the SSE:

Albania 10/2014

Energy scenarios in the WB (co-sponsored by ECS):

Vienna 12/2015

E&I Workshop conclusions:

Limited information on the status quo;

Regional fragmentation;

Lack of overarching planning;

Urgent need for energy investments.

E&I Research objectives:

Explore cross-country synergies;

Identify cost-effective energy saving actions/projects;

Provide EU dimension on integrated regional planning;

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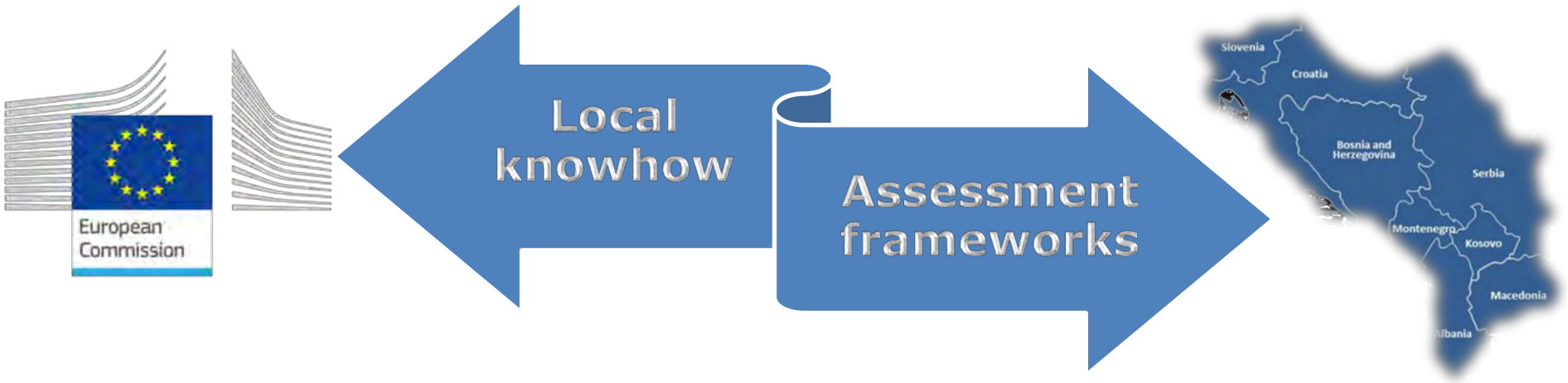
Open invitation for knowledge sharing with the Western Balkan countries.

Knowledge sharing activities based on modelling allow for:

- Bilateral knowledge transfer among local stakeholders and the JRC.
- Integration of local stakeholder views in the analysis of energy technology options for the region.
- Leveraging local expertise.



E&I modelling activities:

Scenario development for the Western Balkan region for:

- Integration of domestic energy policies and assessment vis a vis with the EU targets;
- Technologies impact assessment for low carbon emissions development.

Increased sectorial resolution of energy service demand.

Data improvements include:

- Techno-economic performance of generation technologies;
- Natural resources;
- Renewable potentials;
- Trade balances;
- Domestic policy targets.

Scenarios are not forecasts - they describe possible futures.

Recent publications:

Goto: http://publications.jrc.ec.europa.eu/repository/

Search by "Report Nº"

1.Assessing the impacts of technology improvements on the deployment of marine energy in Europe with an energy system perspective. Report Nº: JRC91418

2.Assessing the role of electricity storage in EU28 until 2050. Report Nº: JRC90267

3.Decarbonised pathways for a low carbon EU28 power sector until 2050. Report Nº: JRC89458

4.The effect of limited renewable resources on the electricity generation in a low-carbon Europe. Report Nº: JRC92251

5.How far away is hydrogen? Its role in the medium and long-term decarbonisation of the European energy system. Report Nº: JRC96734

6.Improved representation of the European power grid in long term energy system models: case study of JRC-EU-TIMES. Report Nº: JRC93748

7.The JRC-EU-TIMES model - Assessing the long-term role of the SET Plan Energy technologies. Report Nº: JRC85804

8.The JRC-EU-TIMES model. Bioenergy potentials for EU and neighboring countries. Report Nº: JRC98626

9.Supporting the deployment of selected low-carbon technologies in Europe: Implications of techno-economic assumptions. An energy system perspective with the JRC-EU-TIMES model. Report Nº: JRC99082

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