RAP™ Energy solutions for a changing world

Realising Europe's "Efficiency Pipeline"

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First Things First:
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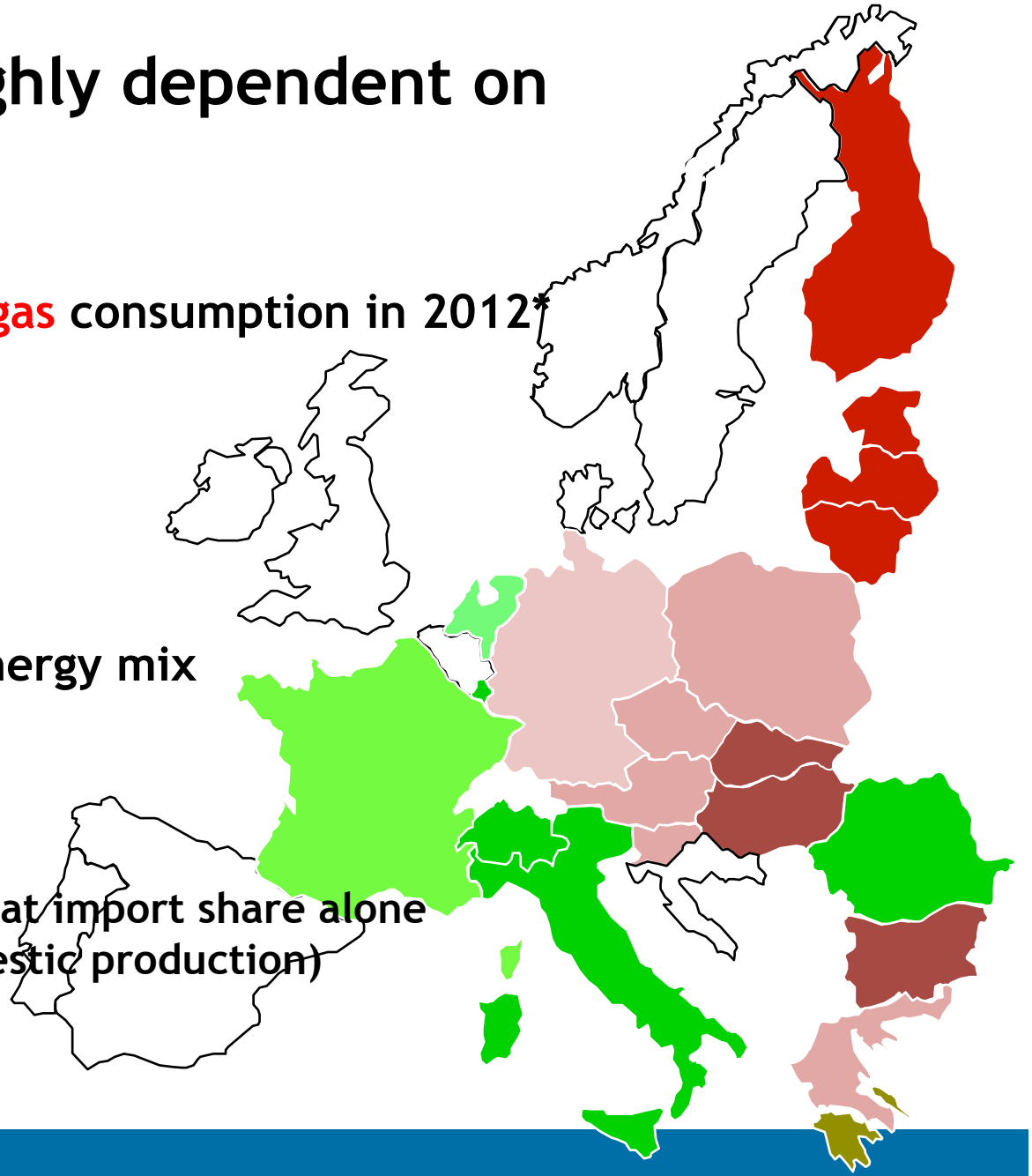
Natural gas consumption – Why do we care?

- **Economic drain**: Europe imports 66% of our natural gas
- **Energy security**: 30% of all gas imports come from Russia; about 60% of gas used in buildings comes from Russia
- **Competitiveness:** Gas in Europe costs much more than in the US, decreasing competitiveness
- As **power markets** evolve, gas is more and more valuable for generating electricity, which is also driven by end uses in buildings.
- Gas is a **climate pollutant** – better than coal, but perhaps not by much

Several EU MS are highly dependent on Russian gas

Share of Russian gas in total gas consumption in 2012*



Additional considerations:

- Share of gas in national energy mix
- Role of storage and LNG

(*indicator takes into account that import share alone would fail to acknowledge domestic production)

Energy solutions

Source: Eurogas

0-1%	5-10%	10-20%	20-30%	30-40%	50-60%	80-90%	90-100%

What is Europe's "Efficiency Pipeline"?

The aggregate potential of end-use energy efficiency to reduce reliance on natural gas in Europe

- For electricity, EE delivers the "**Efficiency Power Plant**"
- For natural gas, we can visualize the "**Efficiency Reservoir**" or the "**Efficiency Pipeline**"
- Recognises end-use efficiency as a resource in gas systems too
- Lower risk, lower cost, lower emissions than the leading supply-side options:
  - shale gas, LNG terminals, major long-distance pipelines, coal gasification, etc.
- EU Commission found that each 1% improvement in efficiency reduces gas imports by 2.6%

(EE impact assessment July 2014)

Buildings – why do we care?

- The principal infrastructure of all Member States is not roads, bridges, rail lines – but buildings
- Europe's useable floor area in buildings is roughly equal to the size of Belgium
- 75% of this infrastructure will still be in use in 2050
- Buildings consume 40% of total energy used in Europe, more than any other sector
- Building retrofits deliver multiple benefits widely
- Reducing gas demand in buildings is a powerful way to reduce import dependency

Ecofys: Deep Renovation Scenario Impacts on European Gas Imports

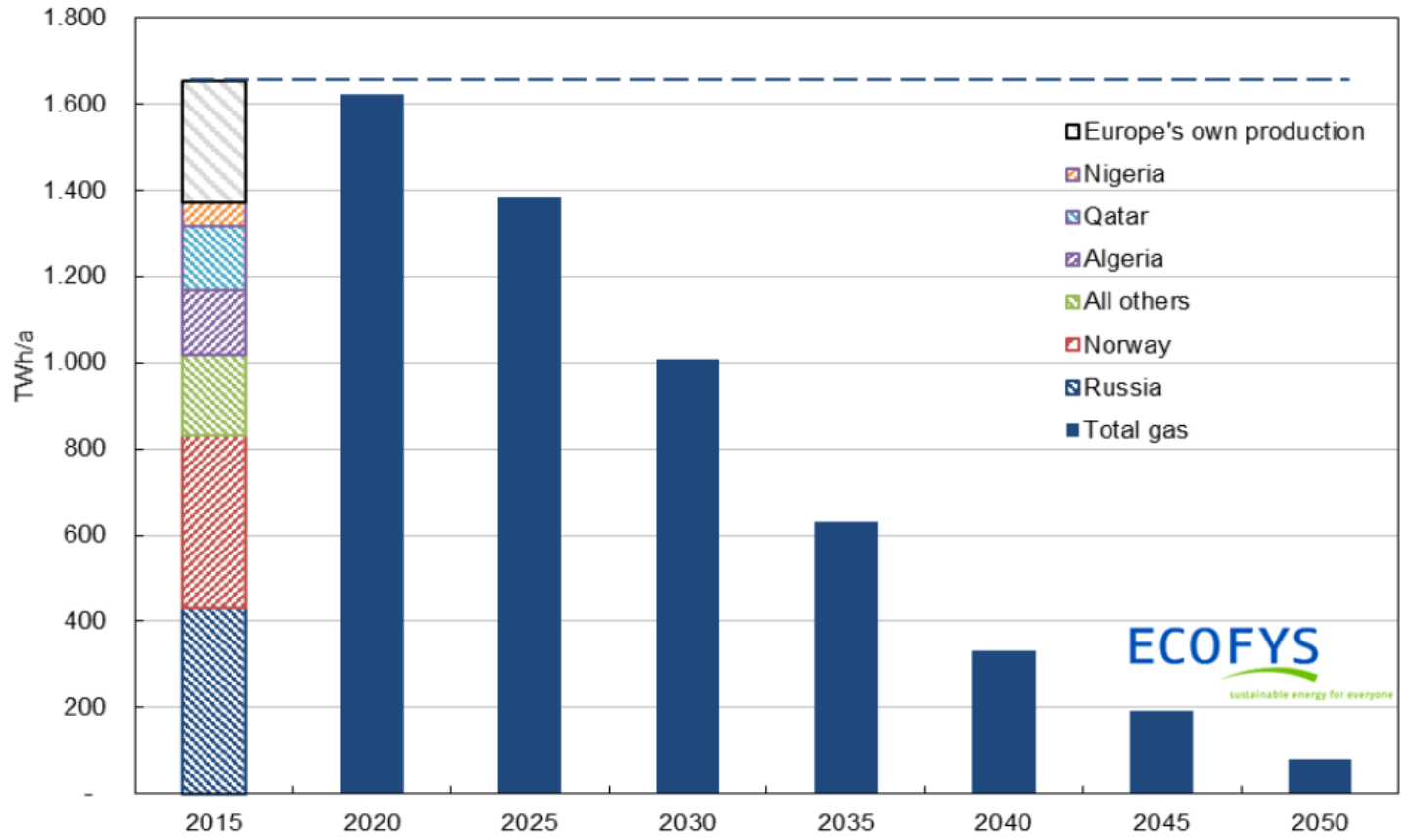


Figure 5: Effects of deep renovation in the building sector towards independency of EU's gas imports

Why "Efficiency First"?

- EU facing difficult challenges on energy security, competitiveness/affordability, and emissions –
- We know EE and DR are valuable in addressing all of these issues.
- Yes, Europe and European MS have a host of efficiency and DR policies/tools already.
- *What is lacking is the discipline to use them,* (and deploy new tools) when EE and DR would be more reliable, less costly, lower emitting.

What do we mean by "Efficiency First"?

It's a *high-level decision rule* that would apply across many energy decision venues:

Before committing to substantial investments in supply-side resources (e.g., generation capacity, pipelines, fuel contracts) public policymakers will:

(1) **Take a "hard look"** to see if the energy need at hand could be addressed at lower cost and risk through greater delivery of demand-side resources;

(2) **Take actions** needed to deliver those EE solutions; and

(3) **Depart** from the least-cost path only for clear and well-justified reasons

Efficiency First in Practice: Much Experience to Draw Upon

- Years, even decades, of practice with mandatory utility **"least-cost" planning**, including **gas system IRP;**
- **Energy Efficiency Obligations** in 5 EU Member States, now growing to 16 Member States;
- EEOs in half of US states; total spending now >$7 Billion p/a; and **Open bidding by EE and DR in regional capacity markets**
- Using targeted DSR to **defer T&D upgrades** (Con Edison in NY expects to avoid > $1 Billion on local grids)
- **California's "Loading Order"** is a leading example of applying "Efficiency First" across many energy decisions in one of the world's largest economies.
- **Efficiency first rules** in Ontario, Massachusetts, Vermont & others
- Removing the volume driver in **gas distribution rates** (22 US states)

Building the Efficiency Pipeline

- Market liberalisation reduces governmental leverage points for gas IRP. However, many policy options remain.
- First steps already exist in Internal Gas Market Directive (2009/73/EC)
  - MS may create a **Public Service Obligation** on gas undertakings **– including for efficiency.**
  - **Least cost investment requirement-** DSOs must give "due regard" to energy efficiency
  - Decoupling, shared savings (EED Art.15.4)
- TEN-E – opportunities to require EE in cross-border planning and investment packages

Efficiency First – Do we have the political will to act?

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…the energy we do not use is the cheapest, most sustainable and most secure energy there is. The EU is already a world leader here; but I think we can do so much more. It starts with taking "efficiency first" as our abiding motto.

--EU Climate Action and Energy Commissioner Arias Canete, February 2015

- ***"If I were emperor of the world, I would put the pedal to the floor on energy efficiency and conservation for the next decade."***

— Dr. Stephen Chu, United States Secretary of Energy

- The technology and know-how are there, all it takes is the political will to move…" –Oliver Rapf, Director, Buildings Performance Institute, Europe

Finally -- Why Efficiency First?

In 2050 he will be the age of many of the people at this conference.

Will we still be talking about fossil fuel dependence and the need to renovate old buildings?

RAP™ Energy solutions for a changing world

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power sector. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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